INSTALLER/INTEGRATOR MANUAL

VideoWall™ VW-100HD
CineWall™ CW-95HD

Full HD, In-Wall Display

RUNCO

THE WORLD'S FINEST HOME THEATER PRODUCTS™

Online Product Registration and Warranty

To register your Runco product and obtain information about warranty and service offerings, please visit http://www.runco.com/info.html.

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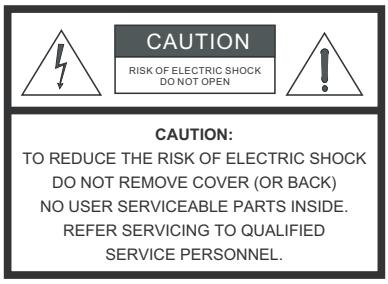
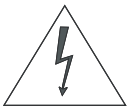
Runco Products are manufactured under one or more of the following patents: US. Patent 6755540 and Other Patents Pending.

Important Safety Instructions

Thank you for your purchase of this quality Runco video product! It has been designed to provide you with the quality of video that is expected in a home theater. For the best performance, please read this manual carefully as it is your guide through the menus and operation.





WARNING
This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturer’s instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for the replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
11. Only use the attachments/accessories specified by the manufacturer.
12. Use only with a cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Keep the packing material in case the equipment should ever need to be shipped.
16. The lamp becomes extremely hot during operation. Allow the display to cool down for approximately 45 minutes prior to removing the lamp assembly for replacement.
17. Do not operate lamps beyond the rated lamp life. Excessive operation of lamps beyond rated life could cause them to explode in rare occasions.
18. Never look directly into the lens when the lamp is on.

Compliance Information

DECLARATION OF CONFORMITY:

Manufacturer's Name: Runco International, LLC

Manufacturer's Address: 1195 NW Compton Drive, Beaverton, OR 97006-1992

hereby declares that the Products' Model Numbers:

VideoWall™ VW-100HD and CineWall™ CW-95HD

conform with the provisions of:

Council Directive 2004/108/EC on Electromagnetic Compatibility;

EN 55022 "Limits and methods of measurements of radio interference characteristics of information technology equipment" 1998;

EN 55024 "Limits and methods of measurements of immunity characteristics of information technology equipment" 1998;

Including:

- EN 61000-4-2 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques Section 2: Electrostatic discharge immunity test"
- EN 61000-4-3 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques Section 3: Radiated, Radio-Frequency, Electromagnetic Field Immunity Test"
- EN 61000-4-4 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques Section 4: Electrical fast transient/burst immunity test"
- EN 61000-4-5 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques Section 5: Surge immunity test"

Note

During high-voltage spikes in AC power, this product's surge protection circuit may require re-starting the unit. This behavior is normal.

- EN 61000-4-6 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques Section 6: Conducted disturbances induced by radio-frequency fields immunity test"
- EN 61000-4-8 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques Section 8: Conducted disturbances induced by power frequency magnetic fields immunity test"
- EN 61000-4-11 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques Section 11: Voltage dips, short interruptions and voltage variations immunity tests"

And:

- EN 61000-3-2 “Electromagnetic compatibility (EMC) Part 3, Section 2: Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)” 2000;
- EN 61000-3-3 “Electromagnetic compatibility (EMC) Part 3, Section 3: Limitations of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current up to and including 16 A and not subject to conditional connection” 1995;

Council Directive 2006/95/EC and amended by M1 and C1 on Low Voltage Equipment Safety;

EN 60950 “Safety of information technology equipment, including electrical business equipment”

The Technical Construction file required by this Directive is maintained at the corporate headquarters of Runco International, LLC, located at 1195 NW Compton Drive, Beaverton, OR 97006-1992.

Date of Declaration: October 2008

FCC PART 15:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

INDUSTRY CANADA (ICES-003):

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

PRODUCT DISPOSAL:

The Product contains small amounts of tin, lead and/or mercury. Disposal of these materials may be regulated due to environmental considerations.

IMPORTANT RECYCLE INSTRUCTIONS

Hg

Lamp(s) inside this product contain mercury. This product may contain other electronic waste that can be hazardous if not disposed of properly. Recycle or dispose in accordance with local, state, or federal Laws.

For more information, contact the Electronic Industries Alliance at WWW.EIAE.ORG.

For lamp specific disposal information check WWW.LAMPRECYCLE.ORG.

DISPOSAL OF OLD ELECTRICAL AND ELECTRONIC EQUIPMENT (Applicable throughout the European Union and other European countries with separate collection programs)

This symbol found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources. This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

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Notes:

1. Introduction

1.1 About This Manual

This Owner's Manual describes how to install, set up and operate a Runco VideoWall/CineWall™ Full HD, In-Wall Display.

Throughout this manual, the Runco VideoWall/CineWall™ Full HD, In-Wall Display is referred to as the "VideoWall/CineWall."

◄ ***Target Audience***

Runco has prepared this manual to help home theater installer/integrators safely install and optimize the performance of the VideoWall/CineWall.

Runco has made every effort to ensure that this manual is accurate as of the date it was printed. However, because of ongoing product improvements and customer feedback, it may require updating from time to time. You can always find the latest version of this and other Runco product manuals on-line, at www.Runco.com.

◄ ***If You Have Comments About This Manual...***

Runco welcomes your comments about this manual. Send them to techpub@runco.com.

◄ ***Textual and Graphic Conventions***

Text Conventions: The following conventions are used in this manual, in order to clarify the information and instructions provided:

- Remote and built-in keypad button identifiers are set in upper-case bold type; for example, "Press **PREV** to return to the previous menu."
- Computer input (commands you type) and output (responses that appear on-screen) is shown in monospace (fixed-width) type; for example: "To switch to the Component input, type `op 00 select.source = 2` **<Enter>**."
- All keys with functional names are initial-capped, set in bold type and enclosed in angle brackets. These keys are the following: **<Enter>, <Spacebar>, <Control>, <Esc>** and **<Tab>**.
- **<Enter>** indicates that you may press either the RETURN or ENTER key on your keyboard if it has both keys.

In addition to these conventions, underlining, boldface and/or italics are occasionally used to highlight important information, as in this example:

Note

*A carriage return **must** be used after each command or string.*

Graphic Conventions: These symbols appear in numerous places throughout the manual, to emphasize points that you must keep in mind to avoid problems with your equipment or injury:

Tip	*TIPS highlight time-saving short cuts and helpful guidelines for using certain features.*
Note	*NOTES emphasize text with unusual importance or special significance. They also provide supplemental information.*
Caution	*CAUTIONS alert users that a given action or omitted action can degrade performance or cause a malfunction.*
WARNING	*WARNINGS appear when a given action or omitted action can result in damage to the equipment, or possible non-fatal injury to the user.*
DANGER!	*DANGER appears when a given action can cause severe injury or death.*

1.2 Using This Manual

Use the following table to locate the specific information you need in this manual.

If you need...	... Turn to page:
General information about the VideoWall/CineWall™ Full HD, In-Wall Display	3
Installation preparation guidelines	11
Installation instructions	21
First-time configuration instructions	33
Maintenance and troubleshooting and information	49
Information on using serial commands	57
Instructions for using the on-screen menus	91
Specifications for the VideoWall/CineWall™ Full HD, In-Wall Displays	116

1.3 Description, Features and Benefits

Runco, the leading brand in luxury video solutions, proudly announces its new VideoWall™ VW-100HD and CineWall™ CW-95HD in-wall video displays, which offer custom home theater design and installation professionals new levels of installation versatility and convenience while achieving full-HD imagery perfection.

Combining the best of front projection's exceptional image with the aesthetic of a giant flat-screen display, the VideoWall/CineWall provides a high-performance, in-wall display solution for rooms of distinction where high ambient lighting conditions exist, but nothing less than an exceptional Runco cinema experience will suffice.

The VideoWall/CineWall combines an advanced, high-contrast ambient light-rejecting screen with cinema-grade optics and a powerful display engine in a single, self-contained system. It is designed for quick and easy installation into a dedicated, framed wall with a large opening.

The VideoWall/CineWall display engine provides a "Full-HD" (up to 1920 x 1080p) image with stunning color fidelity, vivid whites, deep blacks and unmatched uniformity.

The VideoWall/CineWall features Runco's SuperOnyx™ DMD™ chipset with ConstantContrast™ frame-by-frame contrast correction to provide stellar black levels and rich color saturation even in bright ambient light viewing. Runco's exclusive CinOptx™ lens system incorporates O-Path™ light path enhancement for sharp-looking video, while Vivix II™ internal processing ensures the best video performance.

Two VideoWall/CineWall models are available:

- The **Model VW-100HD** features a 100-inch diagonal measure, 16:9 screen (approximately 88.75 inches wide by 50.5 inches high).
- The **Model CW-95HD** features a 95-inch diagonal measure, 2.35:1 screen (approximately 88.75 inches wide by 37.88 inches high). The CW-95HD provides uncompromising widescreen reproduction of movies originally filmed in the "scope" (2.35:1) format, with no black bars above or below the picture.

In addition to wider viewing angles with increased brightness and colorimetry consistencies, the VideoWall/CineWall provides significant technology and video quality enhancements when compared to like-sized plasma or LCD products. The system's passive cooling allows for virtually silent operation and uses 80 per cent less energy than comparably-sized flat panels.

The VideoWall/CineWall has been engineered to comply with Imaging Science Foundation™ (ISF) standards for maximum home theater image quality. Runco's sophisticated parameters for white balance and color gamut control have also been implemented for precise balance of gray scale and color. The VideoWall/CineWall incorporates Runco-proprietary de-interlacing technology that provides exceptional scaling and film-to-video (3:2 pulldown) conversion for the most artifact-free images possible.

Discrete IR and RS-232 control make custom installation seamless, while discrete source and aspect ratio selection accommodate any automation control system.

Key Features and Benefits ➤

The VideoWall/CineWall offers these key features and benefits:

- Native Resolution: 1920 x 1080 (VW-100HD; 16:9 Native Aspect Ratio) or 1920 x 817 (CW-95HD; 2.35:1 Native Aspect Ratio)
- 156/180W UHP-type Lamp, 6000-hour median life
- ConstantContrast™ provides for infinitely variable adjustment of the light path through the optics, enabling the perfect balance of black and white levels for any type of video source material

Parts List ➤

Your VideoWall/CineWall is shipped with the following items. If any items are missing or damaged, please contact your Runco dealer or Runco Customer Service at (800) 23-RUNCO.

- VideoWall/CineWall™ Full HD, In-Wall Display:
  - Chassis Assembly
  - Screen Assembly
- Remote Control Unit and two (2), AAA-size batteries
- AC Power Cord (North America), 1.83 meters (6.0 feet)
- VideoWall™/CineWall™ Installer/Integrator Manual (this document)

1.4 Required Personnel, Tools and Materials

Installing the VideoWall/CineWall requires the following personnel, tools and materials:

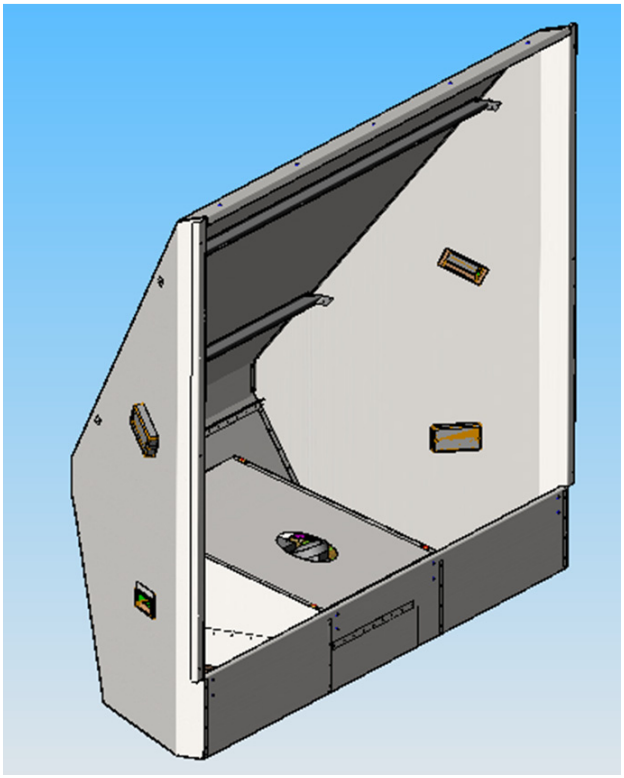
- Two or more people familiar with complex mechanical installations. **Only authorized, Runco Academy-trained dealers should install the VideoWall/CineWall.**
- Circular saw
- Drill with ¼" bit
- Screwdrivers
- Socket and crescent wrenches (various sizes)
- Level
- Tape measure
- Stud sensor
- Wood screws, bolts, nails, washers and other hardware, as dictated by the installation method
- **For color balancing the display**, it is recommended that you use a computer-based color analyzer (Sencore ColorPro 5000 software and ColorPro III sensor, or equivalent), hand-held colorimeter or ISF optical comparator
- AVIA or Digital Video Essentials test DVD (or equivalent), for calibrating individual inputs/sources

1.5 VideoWall/CineWall System Components

This section briefly describes the various VideoWall/CineWall system components.

➤ *Chassis Assembly*

The Chassis Assembly is a sheet metal assembly that contains all of the active components of the VideoWall/CineWall, as shown below.



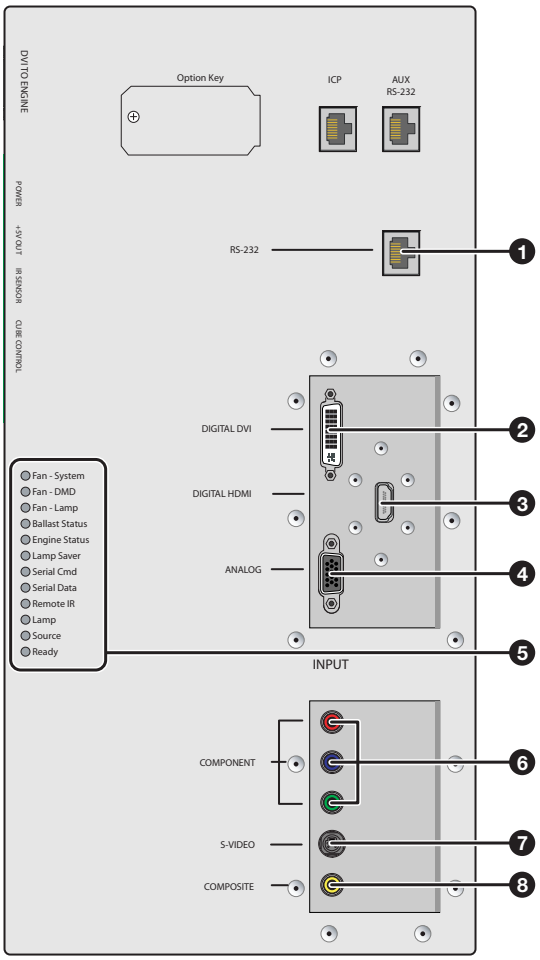
The lower middle section of the chassis assembly contains all of the active components described below. A fold mirror mounted at the rear of the chassis reflects light from the display engine. Several sets of handles are provided on the chassis to aid installation. The outer handles are for carrying the unit to the installation wall; the inner handles are for lifting the unit up and into the wall opening.

Display Engine: The display engine mounts directly to a shelf in the center bottom of the chassis that makes up a plenum for intake air.

Input Connectors and LEDs ➤

The VideoWall/CineWall interface board provides connections for up to six video sources, as well as an RS-232 serial connection for personal computer (PC) or automation/control system interface.

For a list of supported display modes on each input, refer to ***Supported Timings*** on page 119.

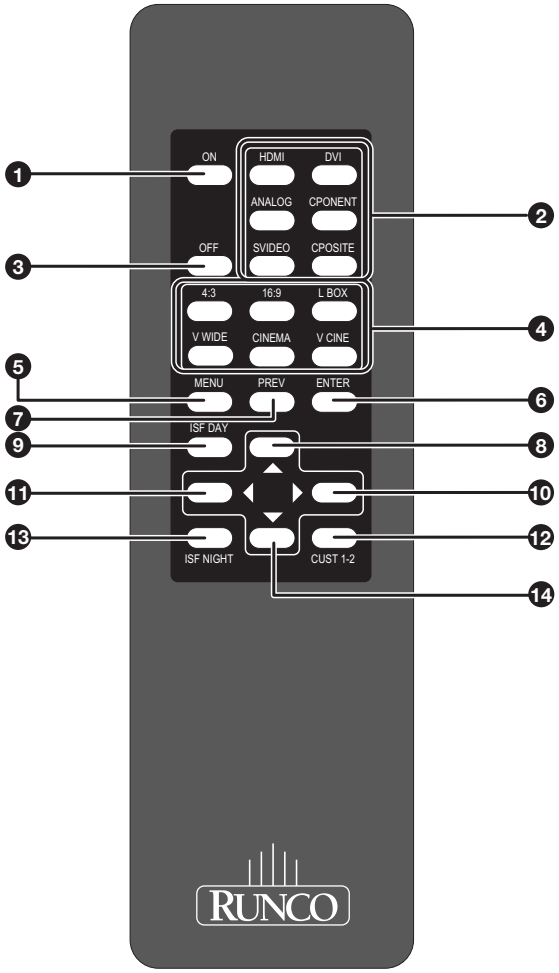


1. **RS-232**
   A female, RJ-45 connector for interfacing with a PC or automation/control system. For more information, refer to ***Serial Communications*** on page 57.
2. **DIGITAL (DVI)**
3. **DIGITAL (HDMI)**

   Two (2), HDCP-compliant digital video inputs for connecting a DVD player, personal computer or HD tuner with a DVI or HDMI output.
4. **ANALOG (RGB)**
   A 15-pin VGA connection to a personal computer. The VideoWall/CineWall automatically detects the signal resolution.
5. **STATUS LEDs**
   These provide information about the current state of various VideoWall/CineWall system components. For information on how to interpret them, refer to ***Status LEDs*** on page 55.
6. **COMPONENT**
   Standard- or high-definition, YPrPb component input from a DVD player, gaming console or other component video source.
7. **S-VIDEO**
   Standard S-Video input for connecting a DVD player, satellite receiver or Super VHS (S-VHS) VCR.
8. **COMPOSITE**
   Standard composite video input for connecting a VCR, camcorder, laser disc player or other composite video source.

The VideoWall/CineWall remote control unit, shown below, allows you to perform the following tasks:

◄ ***Remote Control***



1. **ON**
   Press to turn the VideoWall/CineWall on.
2. **Source Select Buttons**
   Use these buttons to select a video source (Analog, Digital DVI, Digital HDMI, Component, S-Video or Composite).
3. **OFF**
   Press to turn the VideoWall/CineWall off.
4. **Aspect Ratio Selection Buttons**
   Use thee buttons to select an aspect ratio (or “scale mode”) directly.
5. **MENU**
   Press this button to show or hide the on-screen display (OSD) menus.
6. **ENTER**
   Press to select a highlighted menu item or confirm a changed setting.
7. **PREV**
   Press this button to exit the current menu and return to the previous one.
8. **UP**
   Use this button to move the menu cursor up in the OSD.
9. **ISF DAY**
   Press to recall the “ISF Day” memory slot.
10. **RIGHT**
    Use this button to move the menu cursor to the right in the OSD.
11. **LEFT**
    Use this button to move the menu cursor to the left in the OSD.
12. **CUST 1-2**
    Press to recall the “Custom 1” or Custom 2” memory slot.
13. **ISF NIGHT**
    Press to recall the “ISF Night” memory slot.
14. **DOWN**
    Use this button to move the menu cursor down in the OSD.

Screen Assembly ➤

The Screen Assembly comprises all of the components associated with the screen which is attached on the outer side of the installation wall. The Screen Assembly is packaged separately from the Chassis Assembly, to facilitate unpacking and installation. Southco-type latches at the bottom of the screen secure the screen in the closed position.

A hinge system is provided at the top of the screen assembly that interfaces to the top flange of the chassis assembly. This hinge allows the screen assembly to be “hooked” from the top during initial installation. Two, small retaining brackets attach to the top rear of the screen frame. These prevent the screen from “hopping” out of the hinge hook and thus secure the screen.

Chassis Installation Brackets ➤

To reduce the overall depth of the chassis assembly for shipping, the installation brackets that secure the chassis and screen to the wall are packaged separately. These brackets are installed at the customer site right before installing the chassis assembly into the wall opening:

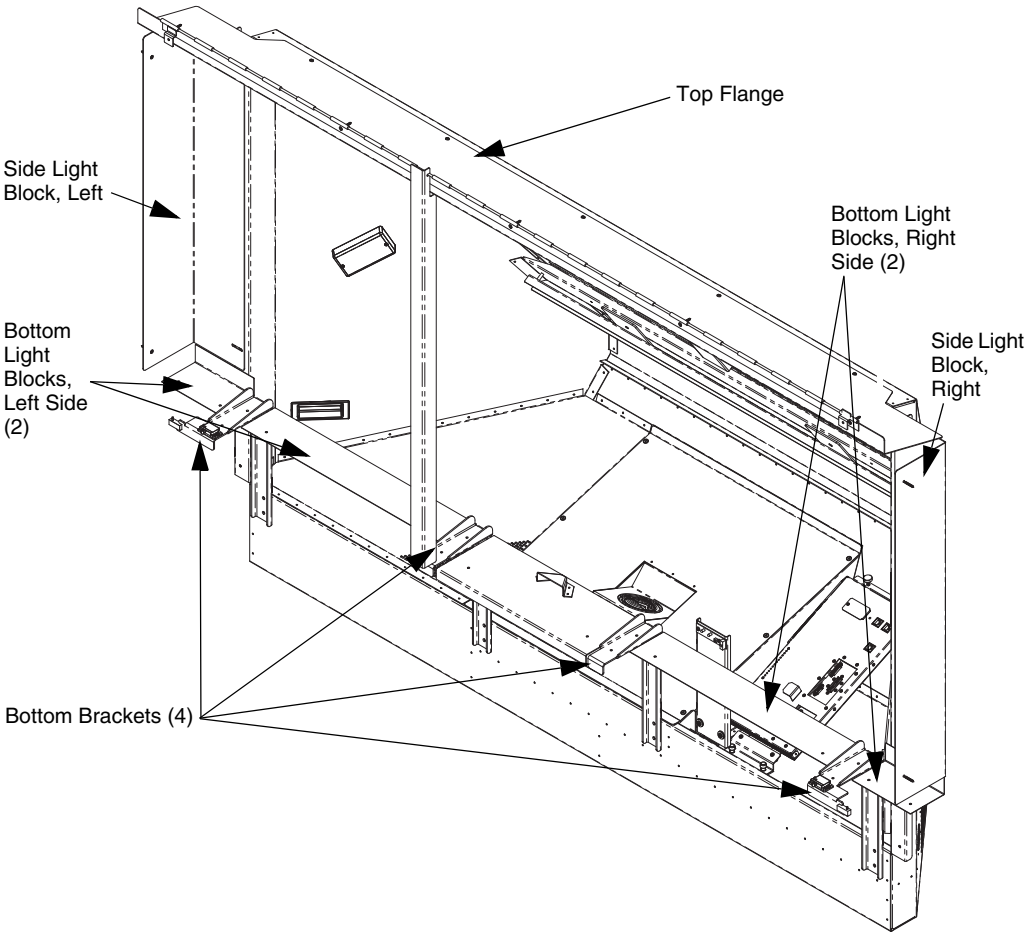

Top Flange
Side Light Block, Left
Bottom Light Blocks, Right Side (2)
Bottom Light Blocks, Left Side (2)
Side Light Block, Right
Bottom Brackets (4)

Figure 1-1. Chassis Installation Brackets (Model CW-95HD shown)

Bottom Brackets: The bottom brackets support all of the weight of the chassis assembly, and provide a pivot point while the chassis is “rotated into” the wall opening. Once installed, these can be screwed into the wall opening with sheet rock screws.

Top Flange: The top flange locks the top of the chassis into position and stops the rotation of the chassis as it is being installed. An installation tool is provided to set the exact distance between the bottom brackets and the top flange, as this is a critical dimension. Shims can be used along the top of the flange if necessary to compensate for any wall irregularities.

Bottom and Side Light Blocks: Light blocks at the bottom and sides of the screen complete the chassis-wall-screen interface. These are installed right before installing the screen, and minimize stray light leakage from behind the screen.

Power Supply: The Power Supply converts incoming 100-240 VAC power to the internal working voltages required by the lamp ballast, video processor and other system components. A switch is provided to connect or disconnect the system from the AC power source.

◄ ***Other System Components***

Cooling Fans: Cooling of the VideoWall/CineWall is accomplished by a combination of forced air and radiant cooling. The power supply is cooled by its own integral fans.

Cover: The center chamber of the chassis where all the active components are housed is covered by an interlocked sheet metal cover, secured by several quarter-turn screws. Removing this cover exposes all the serviceable parts, including the display engine, the lamp system, the power supply and the interface electronics. This cover is electrically interlocked so that the lamp and 380V supply cannot be activated while the cover is open.

Air Filter: As mentioned above, the air filter is installed in the plenum at the bottom center of the chassis. This filter can be accessed and replaced by a service person by opening the screen and reaching in to replace it. The air filter is Runco part number 379-0012-00.

Fold Mirror: The fold mirror reflects light from the display engine and directs it towards the screen. This fold mirror is mounted using a three-point mount system. Three large (5”x5”) mirror mounts and adhesive pads are used along with springs to provide an adjustable mounting scheme. Four safety catches secure the fold mirror in place, in case of adhesive failure of the mirror mounts.

The fold mirror is mounted to hat sections on the slant back wall of the chassis. The mirror is calibrated at the factory, and is not intended to be adjusted in the field.

Notes:

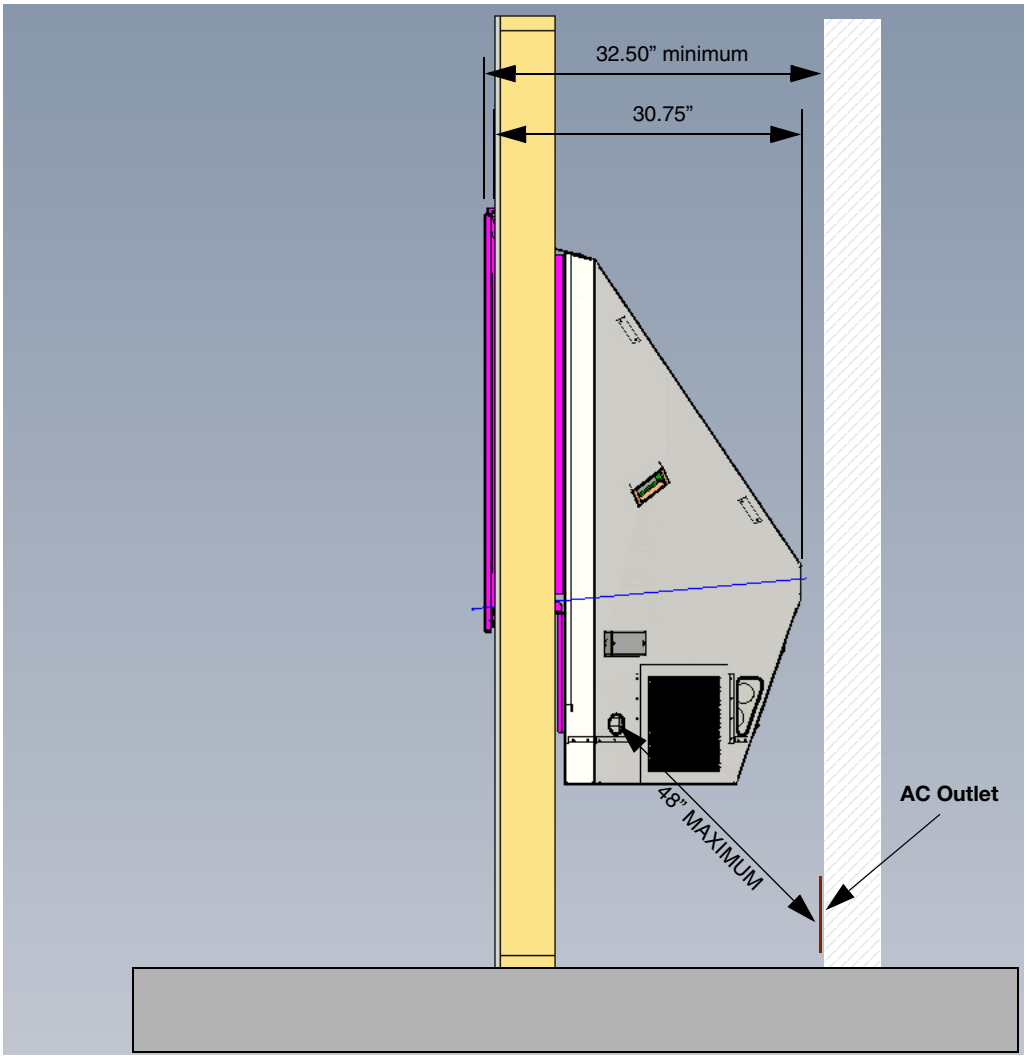
2. Installation Preparation

2.1 Site Requirements

➤ ***Infrastructure***

Prior to installing the VideoWall/CineWall, confirm that the installation site meets the requirements described in this section.

The VideoWall/CineWall is designed for installation into a dedicated, framed, structurally capable wall with at least 32.50 inches (826 mm) of distance between the user-viewable surface of this wall and anything immediately behind the open framed area. The chassis protrudes approximately 30.75 inches (781 mm) from the front of the dedicated wall into the cavity.



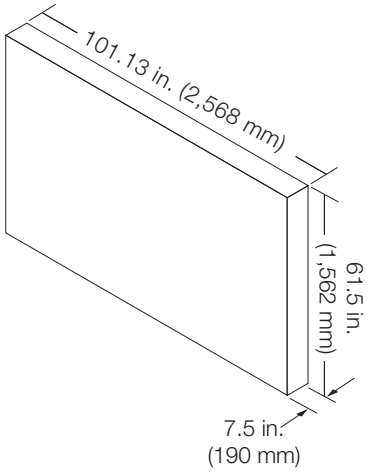
Power Requirements ➤

The VideoWall/CineWall requires clean, noise-free AC power. The power cord provided with the VideoWall/CineWall is 6 feet (1.83 meters) long. In order to use it, the power outlet must be no more than 48 inches (1.22 meters) from the cable openings on the right side of the chassis. If the outlet is farther away, substitute a longer power cord for the one provided with the VideoWall/CineWall; do not use a power strip or extension cord. If you use a substitute power cord, ensure that it is a UL- or CSA-approved, three-conductor (18 AWG or heavier), shielded cord rated at 10 amps minimum.

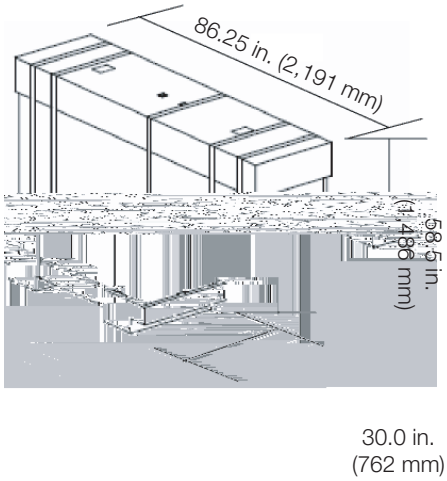
Site Access ➤

The VideoWall/CineWall is shipped in two containers: one for the screen assembly and one for the chassis and related hardware. The shipping container dimensions are as shown below.

Screen

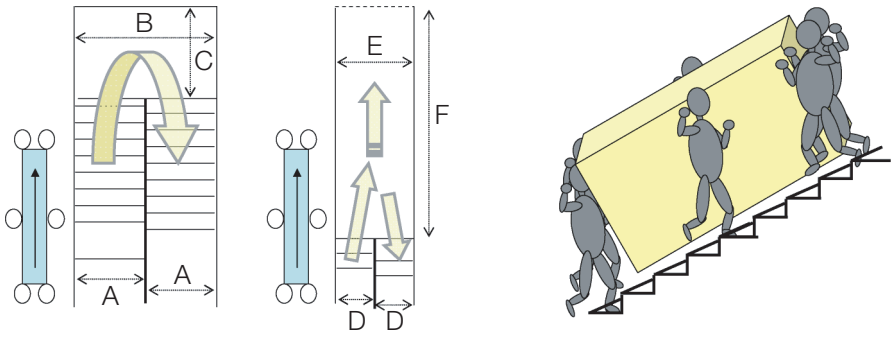


Chassis/Hardware



Ensure that the site has a “carry-in” path with sufficient clearances leading to the installation location. This is particularly important in corners in stairways, landings and hallways.

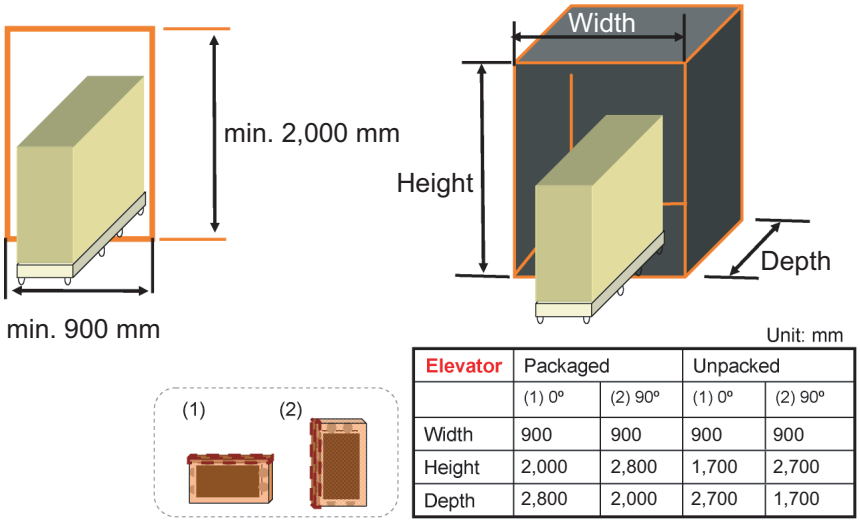
Minimum Stair/Landing Clearances



A	2,000 mm	D	1,200 mm
B	4,000 mm	E	2,400 mm
C	1,900 mm	F	3,700 mm

Also confirm that doorways and elevators (if used) provide sufficient clearances:

Minimum Doorway/Elevator Clearances



Unit: mm

Elevator	Packaged		Unpacked	
	(1) 0º	(2) 90º	(1) 0º	(2) 90º
Width	900	900	900	900
Height	2,000	2,800	1,700	2,700
Depth	2,800	2,000	2,700	1,700

WARNING ***Do not store or transport the VideoWall/CineWall on its side!*** *It should only be placed on its side if absolutely necessary during loading and unloading.*

➤ ***Environmental Considerations***

Here are some other considerations and tips that can help improve your installation, avoid damage, prevent personal injury and prolong operating life:

- Keep the ambient temperature constant and below 35°C (95°F). Keep the display away from heating and/or air conditioning vents. Changes in temperature may cause drifts in the display circuitry, which may affect performance.
- Keep the VideoWall/CineWall away from devices that radiate electromagnetic energy such as motors and transformers. Common sources of these include slide projectors, speakers, power amplifiers and elevators.
- Handle the unit carefully when installing or carrying it. Use the built-in handles; DO NOT touch or hold the screen face.
- Set the unit away from heat, excessive dust, and direct sunlight.
- Protect the inside of the unit from liquids and small metal objects.
- Do not hit or scratch the screen surface as this causes flaws on the surface of the screen.
- ***DO NOT spray liquid of any kind on the screen.*** It can drip down the screen and wick up between the layers. When liquid gets between the screen layers, it is impossible to remove and the screen is ruined!

2.2 Unpacking and Inspecting

When you receive your VideoWall/CineWall shipment, check the shipping containers for damage. If there are signs of damage or rough handling, it is recommended that you have an agent of the carrier present when the equipment is unpacked. If the shipping containers do not appear to be damaged, move them to the installation site before opening them.

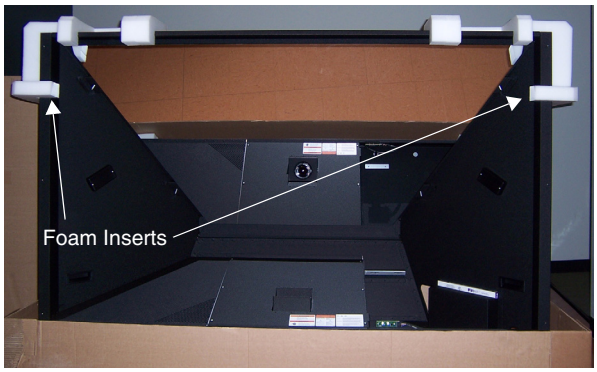
As you unpack each container, check all parts against the shipping documents. The VideoWall/CineWall is protected in the shipping containers. Unpack them carefully, inspecting the chassis and screen for scratches, dents or other signs of damage. If the equipment is damaged, save all packing materials and notify both Runco and the carrier immediately.

Proceed as follows to unpack your VideoWall/CineWall:

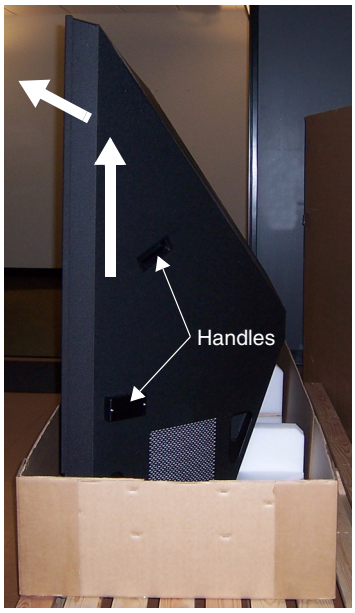
1. Remove the top of the shipping container for the chassis and associated hardware.

2. Lift the box containing the hardware up off of the foam inserts and set it aside.

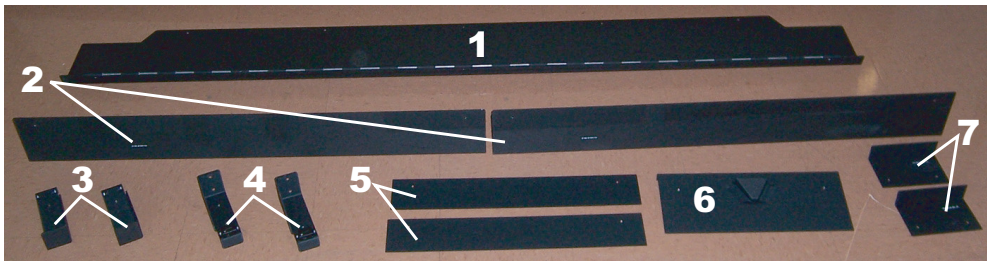
3. Remove the foam inserts on the top corners of the chassis and set them aside.



4. With the help of your assistant, grasp the chassis by the handles on either side and lift it straight up and out of the shipping container.



5. Carefully unpack the screen by opening one end of the shipping container and sliding the screen out of the box.
6. Unpack the chassis hardware and verify that you have received all of the parts listed and shown below.



Item Number	Description	Quantity
1	Top Flange	1
2	Light Blocks (Left/Right Sides)	2
3	Bottom Brackets (Left Center, Right Center)	2
4	Bottom Brackets (Left, Right)	2
5	Light Blocks (Bottom Left Center/Bottom Right Center)	2
6	Center Light Block/Strut Catch	1
7	Light Blocks (Bottom Left/Bottom Right)	2
(not shown)	Mounting Screws	(various)

2.3 Site Preparation

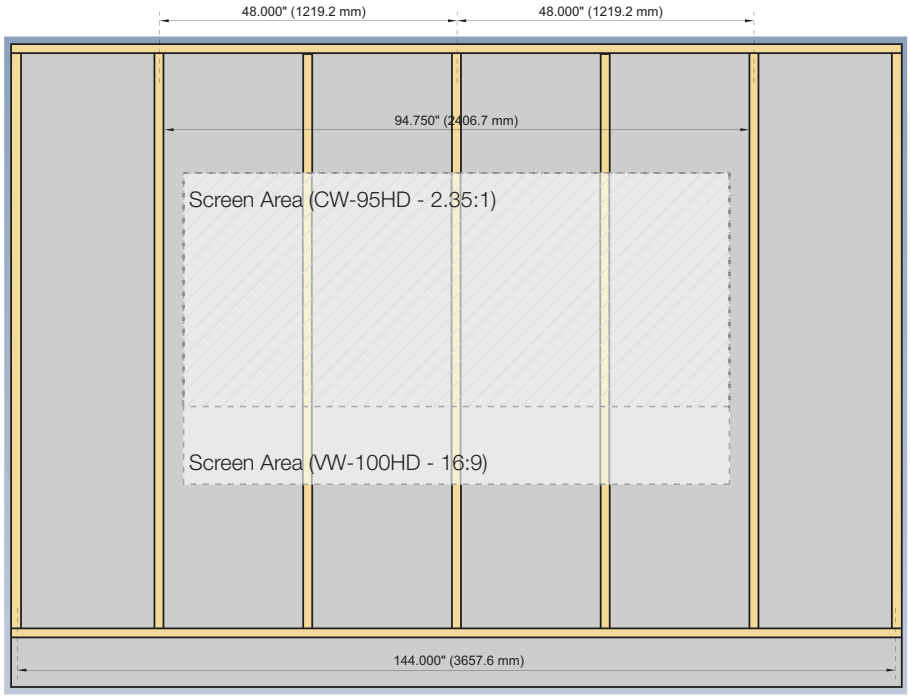
Because every home theater installation is unique, it is impossible to provide detailed, step-by-step instructions that are applicable to every situation. Instead, this manual provides general guidelines for site construction and product installation. Review this information carefully and adapt it as needed to your installation requirements.

The instructions in this section describe how to prepare a dedicated home theater for a VideoWall/CineWall installation. Throughout these instructions, the following “typical” conditions are assumed:

- Ceiling Height: 8 feet
- Theater Width: 12 feet, minimum
- Stud spacing: 24 inches
- Screen position:
  - VideoWall VW-100HD – Centered vertically between floor and ceiling (bottom edge of screen approximately 24 inches from floor)
  - CineWall CW-95HD – Bottom edge of screen approximately 36 inches from floor
  - Centered horizontally between two studs 96 inches apart
  - Supported from below by either three (if 24 inches apart) or five (if 16 inches apart) studs, cut down 1.5 in. and with a 2x6 x 88.75 in. stud nailed to the tops

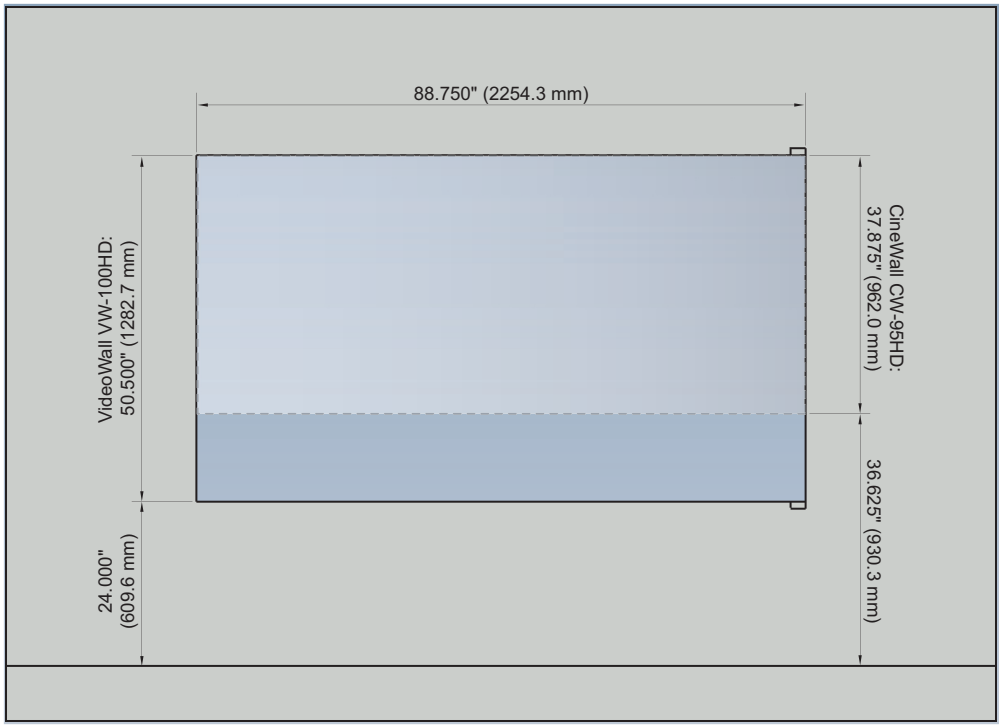
Construct a dedicated, framed wall: Shown below is a typical wall frame, viewed from the rear. It is 12 feet wide, with the studs spaced 24 inches apart. The shaded area represents the opening you will need to create for the VideoWall/CineWall.

For maintenance purposes, provide some means of accessing the rear of the VideoWall/CineWall when installed. If the theater is greater than 12 feet wide, the gap between the side walls and the dedicated wall edges may be sufficient. Otherwise, you will need to create a second opening at one end of the dedicated wall for maintenance access.



Create opening in dedicated wall:

1. Locate three studs 48 inches apart.
2. At the center of the middle stud, mark the location of the screen center based on the desired screen height.
3. From this point, measure/mark 44.375 inches to the left and to the right and the appropriate distance above and below (25.25 inches for a VW-100HD; 18.94 inches for a CW-95HD).
4. Using a laser level, determine and mark the locations of the opening corners.
5. **Double-check your measurements.** “Measure twice, cut once” is always a great rule of thumb to follow.
6. Using the marks as a guide, cut a rectangular opening 88.75 inches wide and of the appropriate height (50.5 inches tall for a VW-100HD or 37.875 inches tall for a CW-95HD).



Reinforce opening in dedicated wall:

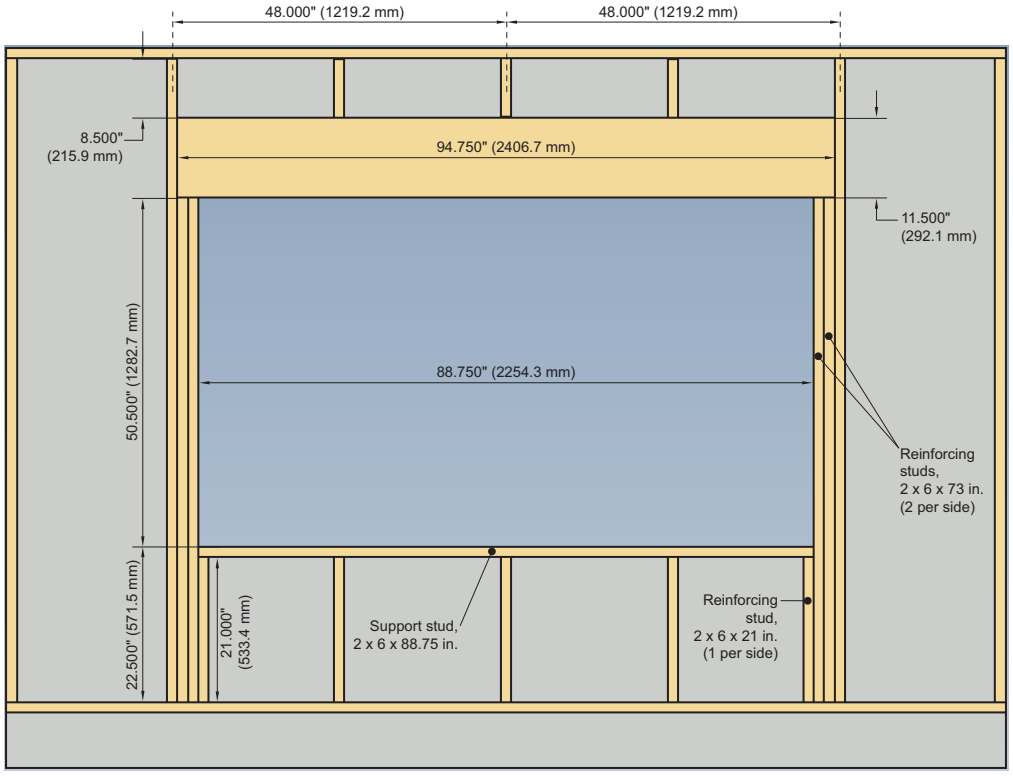
1. At the rear of the dedicated wall, cut away the intermediate studs (three or five, depending on spacing) 1.5 inches below the bottom edge and 11.5 inches from the top edge of the opening.
2. **If you are installing a VW-100HD:** Reinforce each outer stud with two, 2x6 x 73 in. reinforcing studs and one, **2x6 x 21 in.** reinforcing stud. (This assumes that the bottom edge of the opening is 24 inches from the floor.)

   – OR –

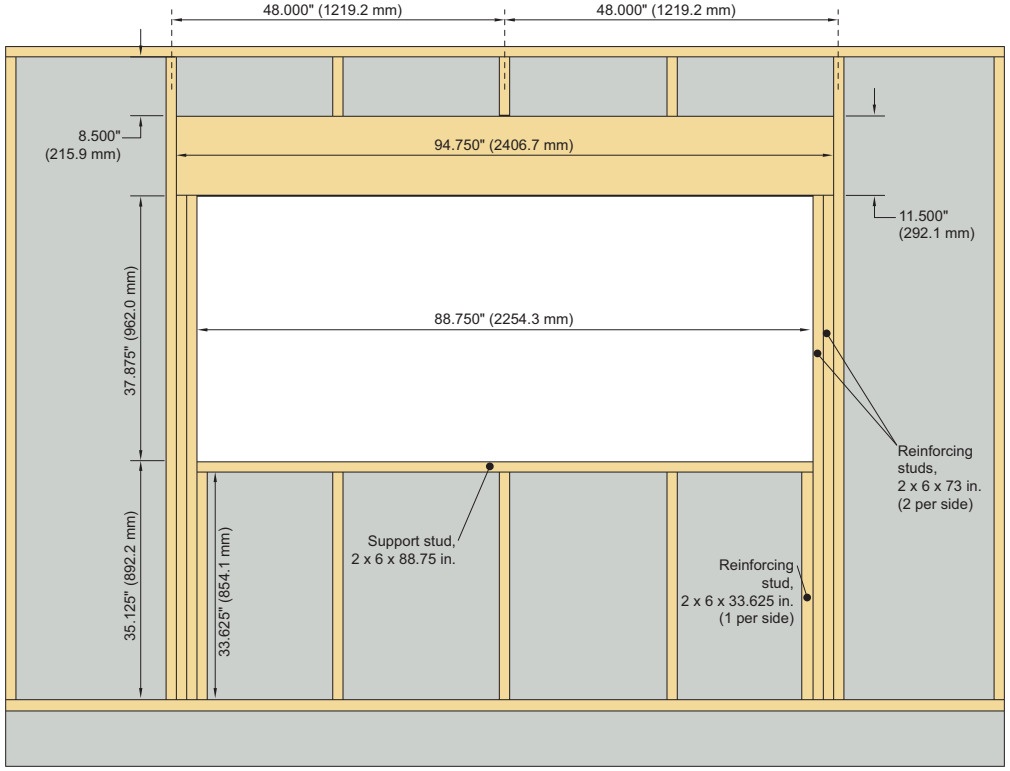
   If you are installing a CW-95HD: Reinforce each outer stud with two, 2x6 x 73 in. reinforcing studs and one, **2x6 x 33.625 in.** reinforcing stud. (This assumes that the bottom edge of the opening is 36.625 inches from the floor.)

3. Reinforce the bottom of the wall opening from behind with a 2x6 x 88.75 in. stud.

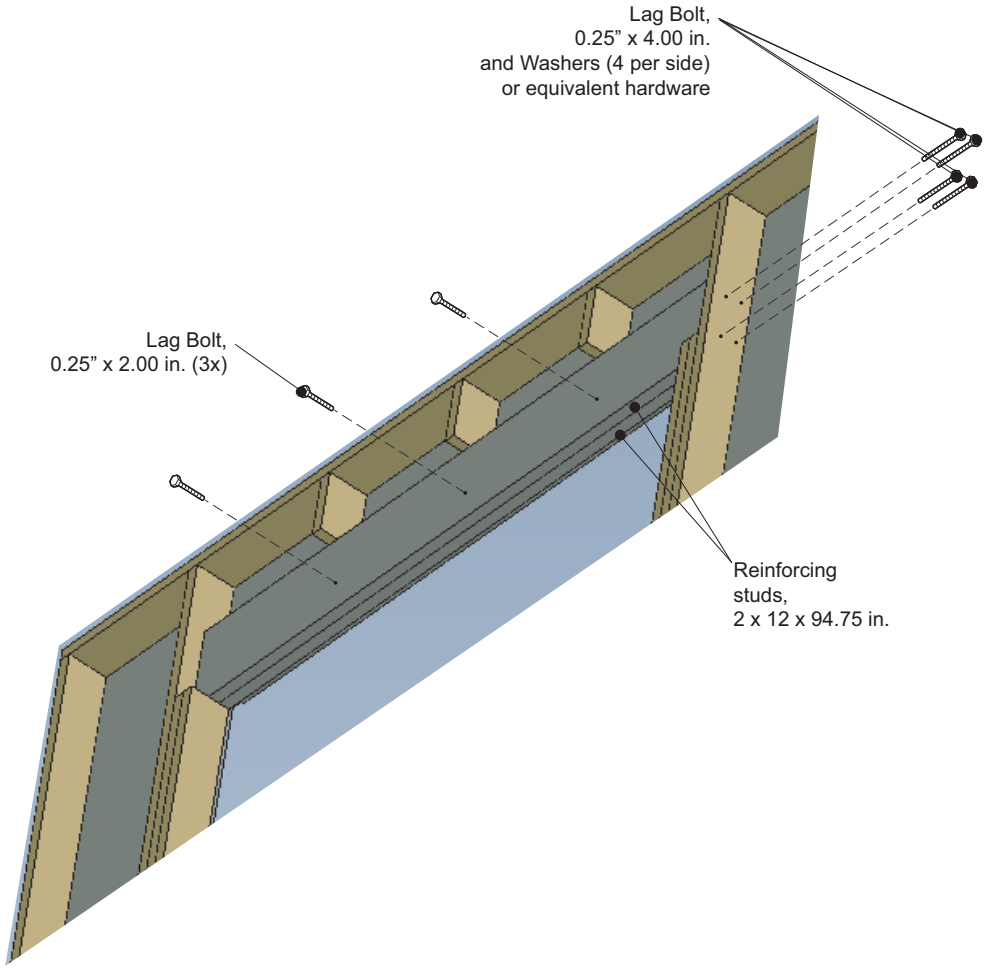
Wall Opening Reinforcement - VideoWall VW-100HD



Wall Opening Reinforcement - CineWall CW-95HD



4. Reinforce the top of the wall opening from behind with two (2), 2x12 x 94.75 in. studs. Secure them to the outer studs using 1/4x4-in. lag bolts and washers (two per side), or a suitable equivalent. For additional stability, secure the 2x12 studs to each other using suitable hardware.



Notes:

3. Installation

3.1 Overview

Table 3-1 gives a quick overview of the VideoWall/CineWall installation process. The sections following this one provide detailed instructions.

Table 3-1. Installation Overview

Step	Procedure	For Details, Refer to page...
1	Install Top Flange and Bottom Brackets on Chassis Assembly	22
2	Place Chassis Assembly with brackets installed into opening in dedicated wall	23
3	Secure Chassis Assembly to wall	23
4	Connect signal sources to the VideoWall/CineWall	26
5	Connect PC or control system to VideoWall/CineWall via RS-232	28
6	Connect AC power to the VideoWall/CineWall	29
7	**Install Screen Assembly:** • Fix screen in open position using fold-out strut • Secure top of screen frame to hinge with safety catches	29
8	**Power up the VideoWall/CineWall:** • Set main power switch to ON • Close screen • Turn on source components • Use remote control to turn on system	32
10	Align image corners with screen corners	33
11	Adjust color balance	34
12	Adjust input levels for each individual source	37

3.2 Mounting the VideoWall/CineWall Chassis

This section provides detailed instructions for installing the VideoWall/CineWall chassis.

Install Top Flange and Bottom Brackets on Chassis Assembly ➤

Install the Top Flange as shown in Figure 3-1. Then, install the Left and Right Bottom Brackets (the ones with the latches on them) at the bottom corners of the chassis, and install the Left Center and Right Center Bottom Brackets in the two intermediate locations.

Note

The illustration below shows the Bottom Brackets for a CineWall CW-95HD. The VideoWall VW-100HD brackets are slightly different but the installation method is the same.

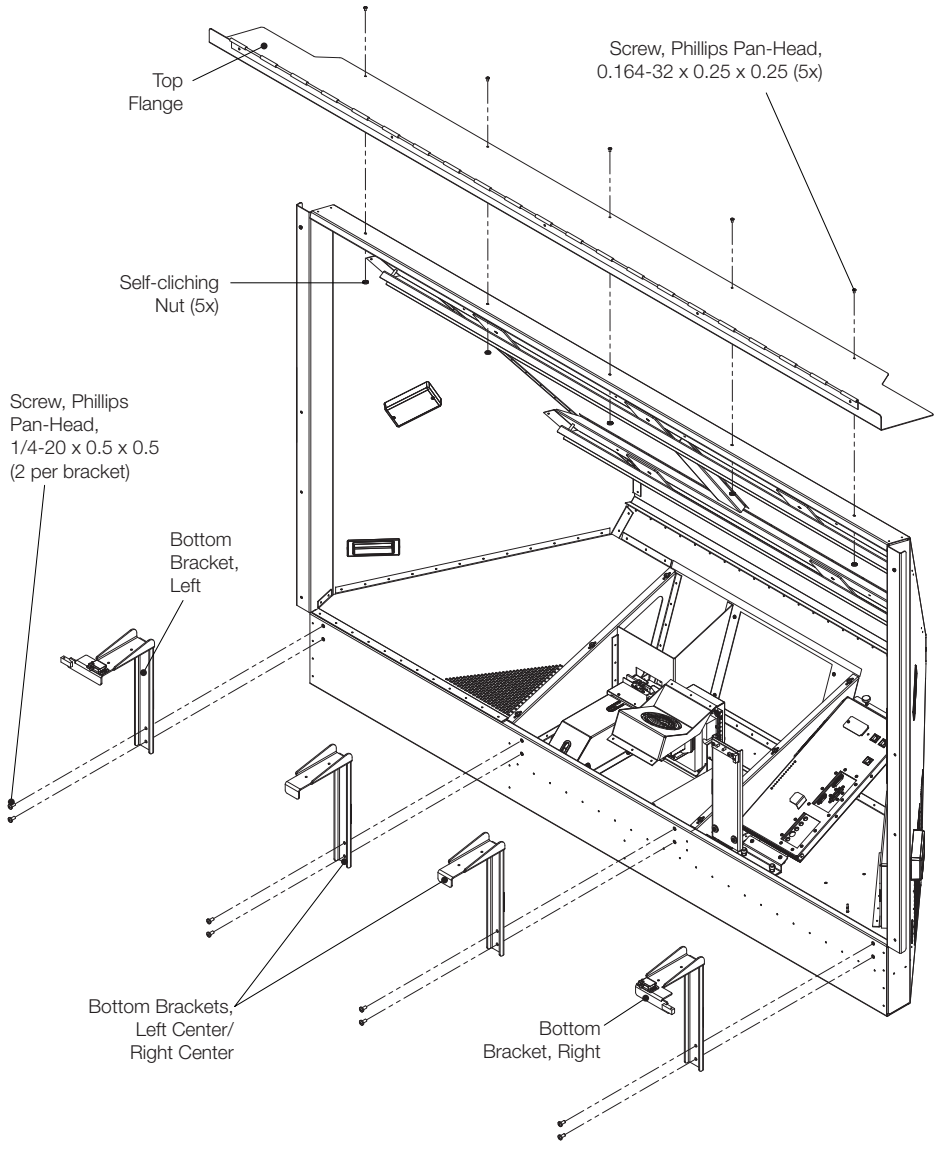
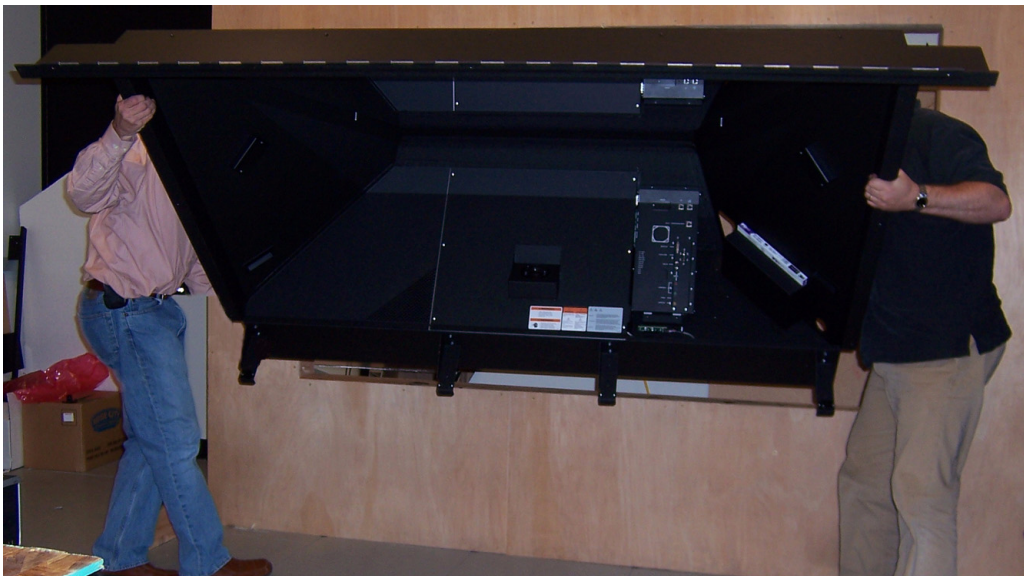

Top Flange
Screw, Phillips Pan-Head, 0.164-32 x 0.25 x 0.25 (5x)
Self-cliching Nut (5x)
Screw, Phillips Pan-Head, 1/4-20 x 0.5 x 0.5 (2 per bracket)
Bottom Bracket, Left
Bottom Brackets, Left Center/ Right Center
Bottom Bracket, Right

Figure 3-1. Installing the Top Flange and Bottom Brackets

➤ *Install Chassis Assembly into Wall*

With the help of your assistant(s), lift the Chassis Assembly by the handles.

While tilting the Chassis Assembly downward, carefully move the Chassis Assembly into the wall opening. Allow the bottom brackets to come to rest on the bottom of the wall opening. Then, rotate the chassis into the opening until the top flange makes contact with the top of the opening.



➤ *Secure Chassis to Wall*

Once the chassis is correctly positioned in the wall opening, you are ready to secure it.

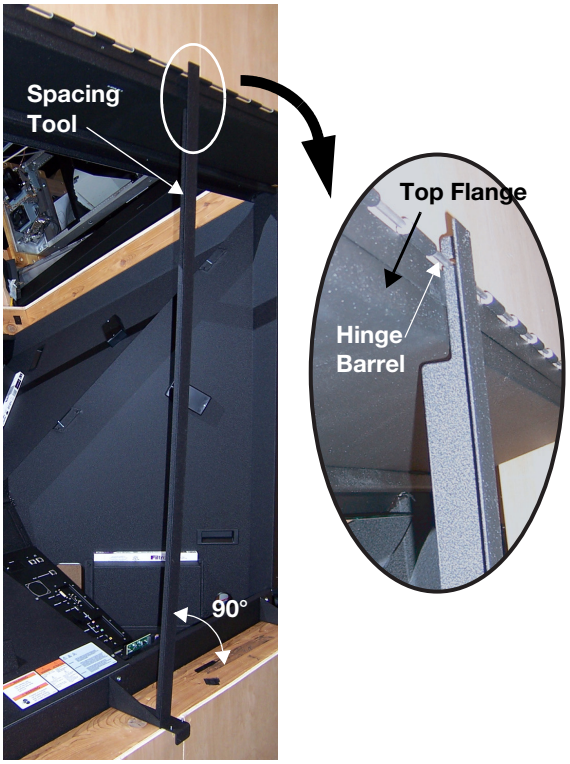
Caution

Before you secure the VideoWall/CineWall chassis to the wall, ***it is absolutely critical that the Top Flange be perfectly level and properly positioned relative to the Bottom Brackets****. If it is not, the screen – when installed – won't open and close properly.*

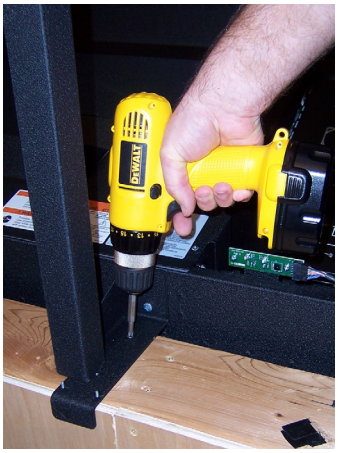
The VideoWall/CineWall includes a special spacing tool to make it easier to level the Top Flange and ensure that it is the correct distance from the Bottom Brackets.

1. Place the Spacing Tool on either the Left Center or Right Center Bottom Bracket, as shown.
2. Engage the slot at the top of the spacing tool with the hinge barrel on the Top Flange.

Ensure that the spacing tool is perpendicular to the top and bottom of the wall opening.



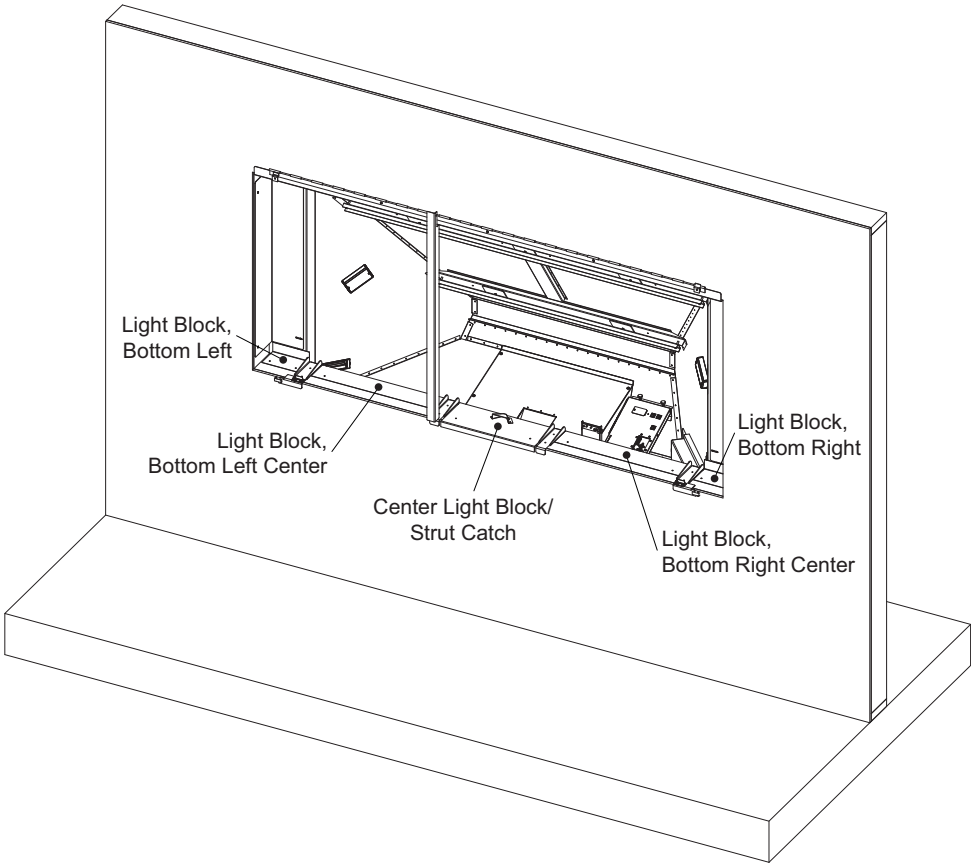
3. Using wood screws of the appropriate size – two for each bottom bracket (8 total) – secure the bottom of the VideoWall/CineWall Chassis Assembly to the opening frame.



4. Secure the Top Flange to the opening frame, using five wood screws. (Use the Spacing Tool at each attachment point, as described above.)

5. Secure the Left and Right Side Light Blocks to the chassis and the opening frame.

6. Secure the Bottom Center Light Block/Strut Catch to the opening frame, between the two Center Bottom Brackets.
7. Install the other Bottom Light Blocks (left, left center, right center, right) as shown below.



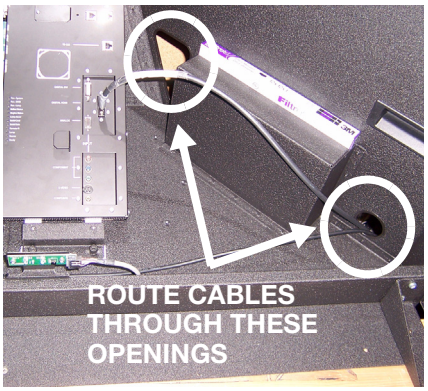
3.3 Connections to the VideoWall/CineWall

Proceed as follows to connect the VideoWall/CineWall to your video sources, external controller(s) – if present – and AC power.

When connecting your equipment:

- Turn off all equipment before making any connections.
- Use the correct signal cables for each source.
- Ensure that the cables are securely connected. Tighten the thumbscrews on connectors that have them.

Route all cables through the cable openings on the right side of the VideoWall/CineWall chassis.



Connecting Source Components to the VideoWall/CineWall ➤

Connect your video sources to the VideoWall/CineWall as shown and described in the sections that follow.

HDMI/DVI Connections: Connect your digital video sources to the **HDMI** and **DVI** inputs. See Figure 3-2.

Tip

Use the digital inputs whenever possible. This ensures the highest video quality because the signal is carried in the digital domain throughout the entire signal path, from source component output into the VideoWall/CineWall.

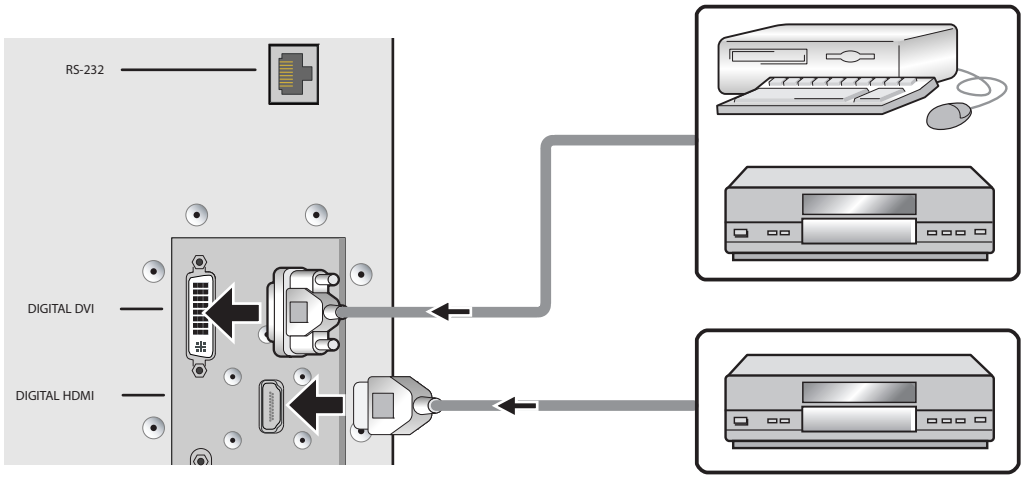


Figure 3-2. HDMI/DVI Source Connections

VGA (RGB PC) Connections: Connect your personal computer or other RGB source to the **ANALOG** input; see Figure 3-3.

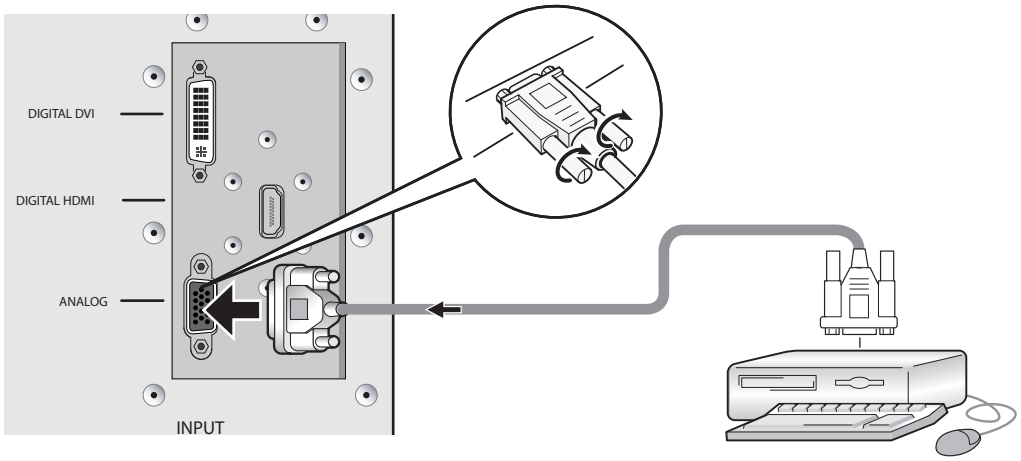


Figure 3-3. VGA Connections

Component Video Connections: Connect your progressive component source (DVD player or HD set top box) to the **COMPONENT** input as shown in Figure 3-4.

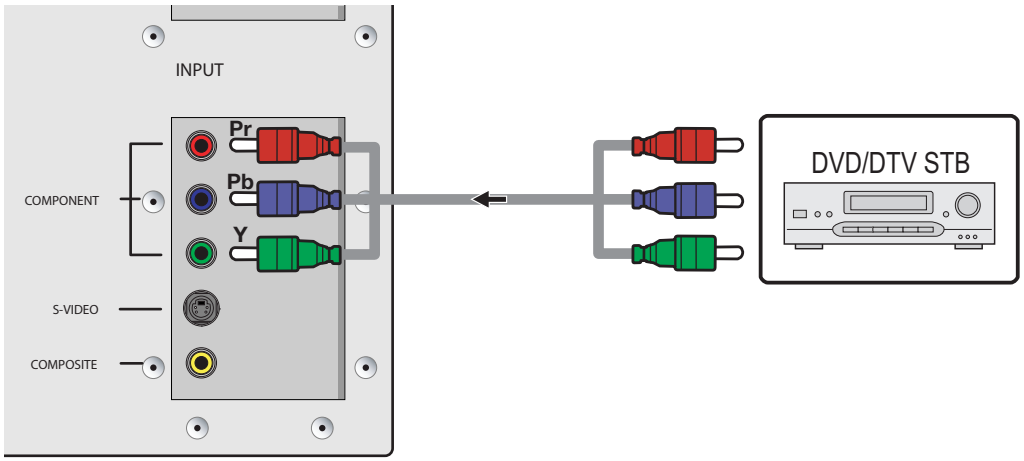


Figure 3-4. Component Video Connections

Composite/S-Video Connections: Connect your Composite and S-Video sources to the VideoWall/CineWall as shown in Figure 3-5.

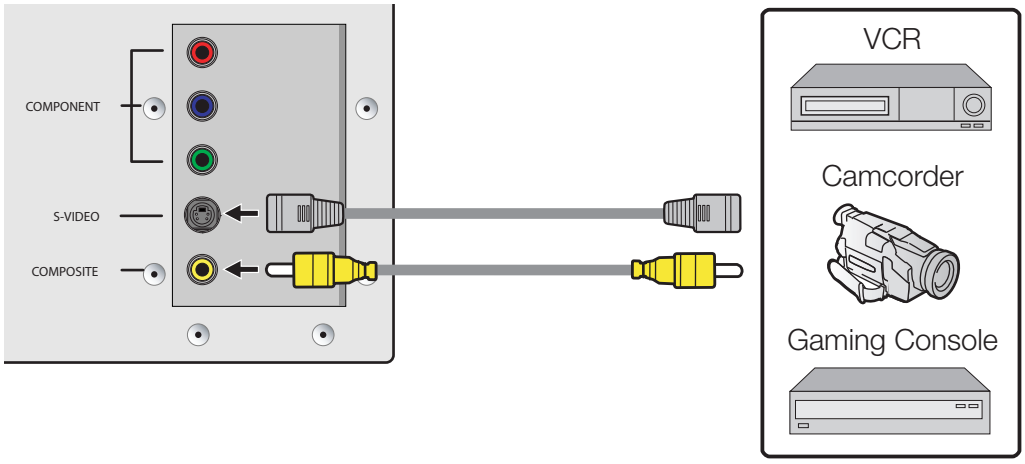


Figure 3-5. Composite and S-Video Connections

RS-232 Controller Connection ➤

Connect a PC or home theater control/automation system (if present) to the **RS-232** port as shown in Figure 3-6. Use a standard, straight-through Category 5 cable with RJ-45 plugs at each end.

At the PC/control system end, use an RJ-45 to DB-9 adapter wired as shown. Such adapters are readily available at electronics or computer supply stores.

For more information about using this connection, refer to ***Serial Communications*** on page 57.

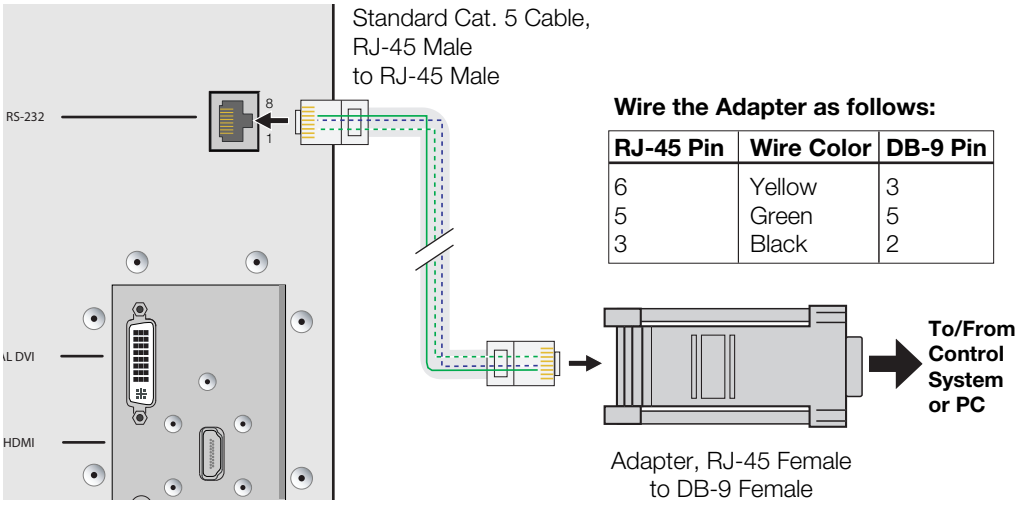


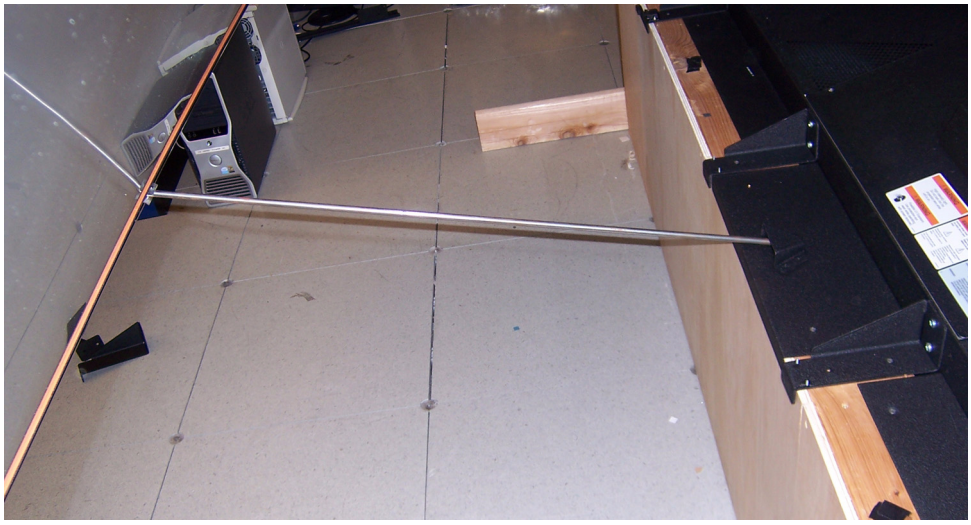
Figure 3-6. RS-232 Control System Connection

To install the screen:

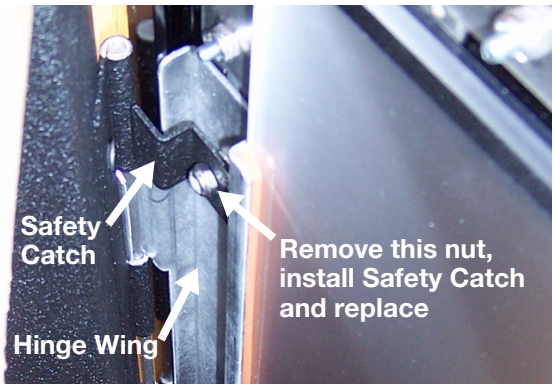
1. Remove the Spacing Tool (used to install the chassis; see page 24).
2. With the help of your assistant(s), lift the screen and position it in front of the Chassis Assembly.

3. Use the hooks to hang the frame on the hinge at the top of the chassis.

4. Use the strut at the bottom of the frame to prop the screen in the open position.



5. Install the safety catches at the top rear corners of the screen. These prevent the screen from separating from the hinge when the screen is opened or closed.
   a Remove the nut at one end of the hinge wing on the back of the screen.
   b Place the safety catch on the exposed screw shaft where you removed the nut.
   c Secure the catch using the nut that you removed in Step 5a.
   d Repeat Steps 5a through 5c to install the other safety catch.



3.5 Installing Batteries in the Remote Control

To install batteries in the remote control:

1. Slide the battery compartment cover down to remove it.
2. Install two AAA batteries with the correct polarity.
3. Replace the cover.

Notes on Remote Control Operation ➤

- Make sure that the battery polarities are correct when installing the batteries.
- Do not mix an old battery with a new one or different types of batteries.
- If you will not use the remote control for a long time, remove the batteries to avoid damage from battery leakage.
- If the effective range of the remote control decreases, or it stops working, replace the batteries with new ones.
- The remote control may fail to operate if the infrared remote sensor is exposed to bright sunlight or fluorescent lighting.

3.6 Turning on the Power

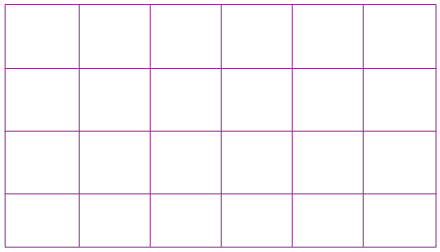
1. Turn on your source components.
2. Set the main power switch on the VideoWall/CineWall to the **ON** position.
3. Return the strut the closed position and close the screen.
4. Gently press on the bottom left and right corners to engage the latches at the bottom of the screen.
5. Press the **ON** button on the remote control to turn on the VideoWall/CineWall.

3.7 Aligning the Image

The VideoWall/CineWall optical engine was perfectly adjusted when it left the factory. However, vibration in transit may have moved it. Before performing any other image adjustments, proceed as follows to confirm proper image alignment.

To align the optical engine:

1. Press **MENU** on the remote control and enter the Installer Menu passcode.
2. Select Advanced Options from the Main Menu.
3. Select Image Alignment from the Advanced Options menu.
4. Highlight Test Pattern in the Image Alignment menu and choose **Grid**. This pattern shows all the pixels in the optical engine.



5. Highlight Adjust Corners in the Image Alignment menu and press **ENTER** or ▶.
6. Use the ▶, ◀, ▲ and ▼ buttons to precisely position the upper-left corner of the displayed grid pattern in the upper-left corner of the screen.
7. Press **ENTER** and repeat Step 6 for the other three corners.
8. Press **PREV** to save the corner position settings and exit the Adjust Corners menu.
9. Press **PREV** again to turn off the test pattern and exit the Image Alignment menu.

3.8 Color Balancing the VideoWall/CineWall

What does Color Balance do? Color balancing is the process of ensuring that whites appear truly white and grays appear truly gray, without any trace of color.

Displays differ from one another because of very small differences in the color of the light produced by the lamp and by differences in the dyes used to make the color in a DLP™ optical engine.

Tip

Although it may be possible to achieve satisfactory results using the naked eye, it is recommended that you use a computer-based color analyzer (Sencore ColorPro 5000 software and ColorPro III sensor, or equivalent), hand-held colorimeter or ISF optical comparator to color balance the VideoWall/CineWall. For more information, visit http://www.isfcalibration.com/Intro.htm.

In color balancing, you use the display's internal test patterns of white, first, then gray. The internal pattern assures that a pure white is used.

1. Turn on the VideoWall/CineWall and let it warm up for at least five minutes. The lamp must be thoroughly warm before you color balance.
2. Press **MENU** on the remote control and enter the Installer Menu passcode. To obtain this passcode, contact Runco Technical Support.
3. Select Advanced Options from the Main Menu.
4. Select Color Balance from the Advanced Options menu.
5. Set Gamma at the bottom of the menu to either Video or Film.
6. Set the Color Temperature to 6500K.
7. Set White Boost to Off.
8. Set Test Pattern to White.

Note

Always use the internal Test Patterns for color balancing, not an external pattern.

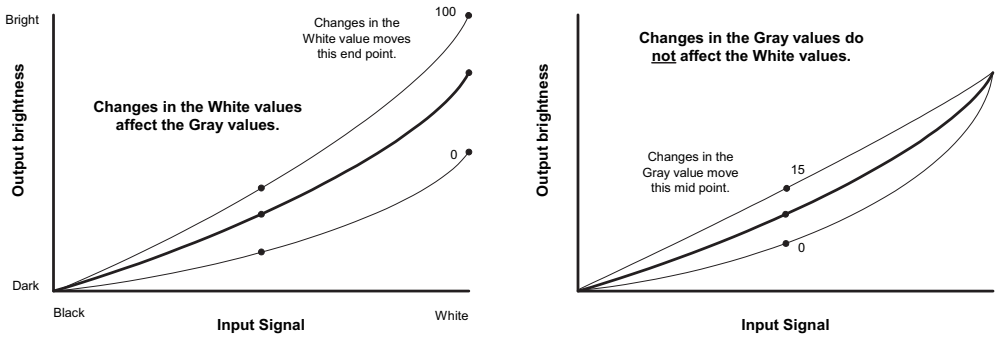
9. Look at the Color Balance values. All the White Balance (Gain) values should be 100, and all the Gray Balance (Offset) values should be 8. If they are not, select Reset to Defaults and press **ENTER**. This is where you should always start color balancing.
10. Stand far enough away from the screen so you are looking almost squarely at it. Pay attention to the large central area, not the edges.
11. Using an optical comparator or other D6500 reference – or a color analyzer – adjust the White Balance values either individually or together (using the "All" slider) to achieve a neutral, D6500 white point.
12. Set Test Pattern to Gray.
13. The gray values range from 0 to 15, and they are all now set at 8. Adjust them up or down as needed to eliminate any trace of color from the test pattern.
14. When you have finished color balancing, set Test Pattern to None.

Note

Copy to Clipboard saves all the current settings to a temporary memory. You can then make more adjustments to see if it gets better or worse. Recall from Clipboard restores these saved settings. The Clipboard is only for testing. These values are not saved when AC power is off.

While color balancing, change the White value by a lot, not just one step. It's difficult to see one step in White. A large change will tell you if you are heading in the right direction.

If you can't decide which way to go, try any change. If it is the wrong change, it will be quickly obvious and you can undo it using the Clipboard.



3.9 Picture Adjustments

The VideoWall/CineWall has been designed to incorporate setup and calibration standards established by the Imaging Science Foundation (ISF). The ISF has developed carefully crafted, industry-recognized standards for optimal video performance and has implemented a training program for technicians and installers to use these standards to obtain optimal picture quality from Runco video display devices. Accordingly, Runco recommends that setup and calibration be performed by an ISF certified installation technician.

All signal types require separate processing. Therefore, you need to calibrate each input separately. The source picture is not always optimal in its size or strength; it does not always conform exactly to a standard. The VideoWall/CineWall provides numerous controls to compensate for this.

Although it may be possible to obtain satisfactory picture quality using the naked eye and regular program material, Runco recommends using the following calibration tools for best results:

- External test pattern source – Ovation Multimedia, Digital Video Essentials or AVIA test DVD or equivalent.
- A blue filter (provided with many test DVDs), for color level and hue (tint) adjustments. (Alternatively, you can use the Blue Only option in the Input Levels menu.)

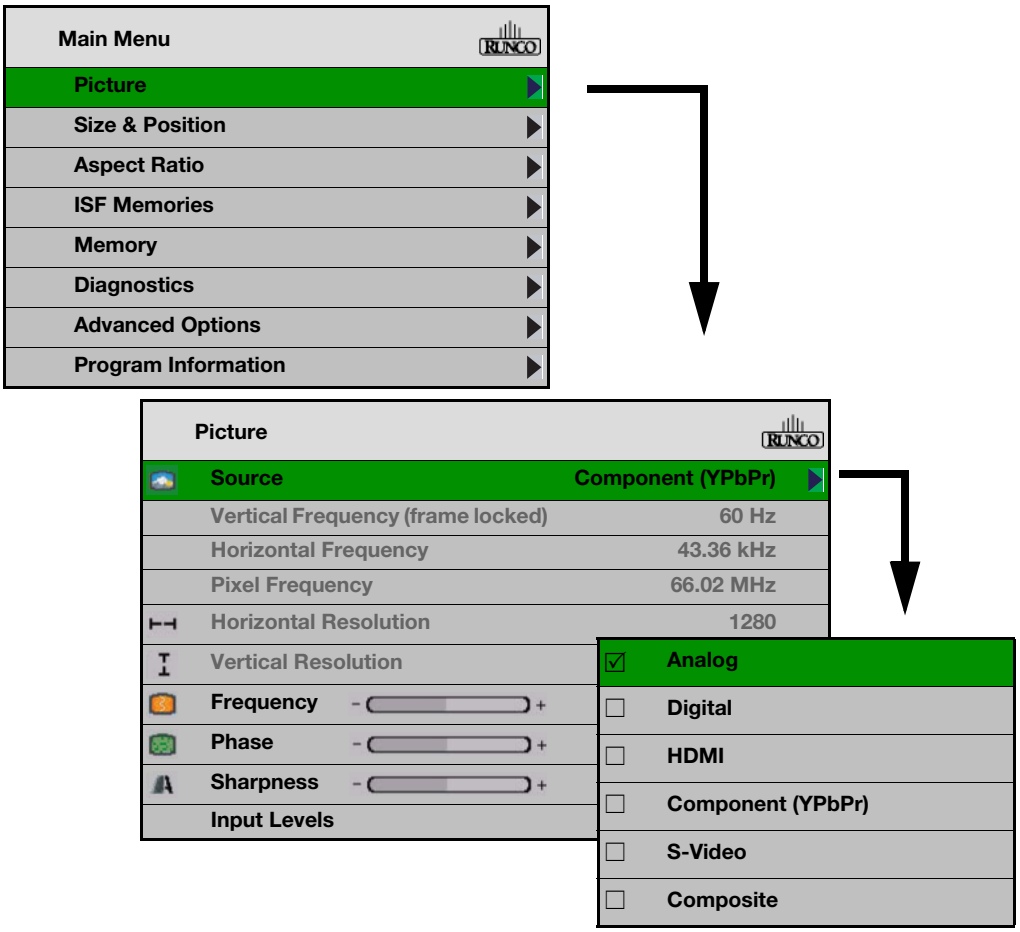
Connect your test pattern source to the input that you are calibrating and proceed as follows. **Perform the adjustments in the order listed here.**

Selecting a Source ➤

1. Press **MENU** on the remote.
2. Select Picture and press **ENTER**.
3. Select Source and press the ▶ button.
4. Choose the source you want and press **ENTER**.
5. Press **MENU** again to close all menus.

Note

You must enter a passcode to access the Memory, Diagnostics and Advanced Options menus. Otherwise, they are hidden. To obtain this passcode, contact Runco Technical Support.



➤ Input Levels – Analog RGB Sources

Computer sources vary greatly from computer to computer and even between video outputs on the same video card. Video sources vary more. Use the Input Levels controls to make the VideoWall/CineWall respond correctly to these non-standard sources.

Note

Input Levels and Color Balance (described on page 34) do not affect each other, but they both affect the final picture.

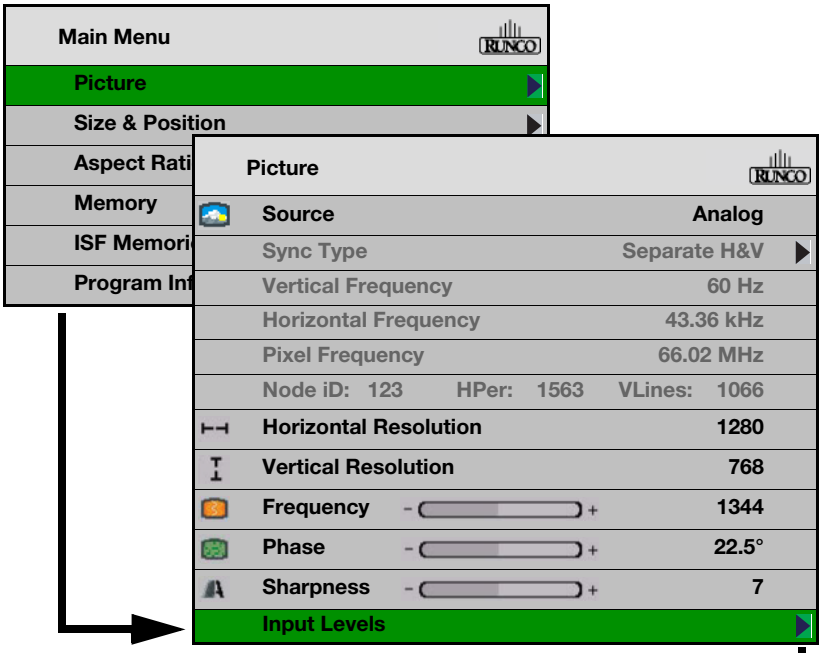
What does Input Level do? For analog computer sources, adjusting to the computer's picture output means determining what that computer means by "black" and "white."

Black is supposed to be a voltage of zero coming from the computer's video card, but it almost never is. White is supposed to be a voltage of 0.7 volts, but it usually isn't either.

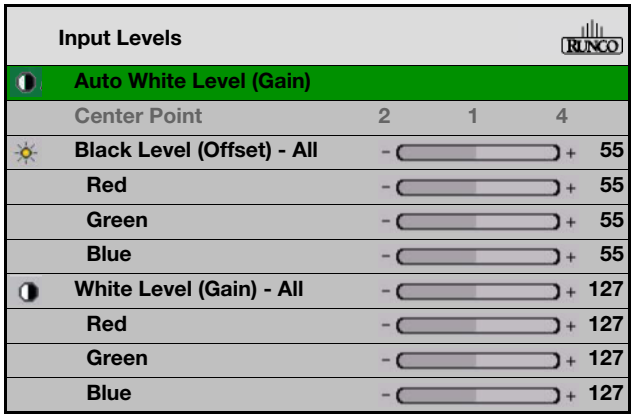
The Input Level adjustment process asks you to provide an all-white picture from the computer. By doing so, you can quickly and automatically make the display "learn" what this computer means by black and white. The result is good pictures, using all the dynamic range of color coming from the computer.

Tip

For best results, use a white field coming from the computer you will use with the VideoWall/CineWall.



Input Levels Menu – Analog Sources



The best way to adjust levels is the semi-automatic method.

Adjusting levels semi-automatically: This is quick and easy if you can get a black picture and a white picture from the source computer.

1. Display a white picture from the source. ***This must come from the computer source that will be used for the program.*** It does no good to use your laptop for this adjustment, then connect to a different computer for the program. Nor can you use the VideoWall/CineWall internal white test pattern.

   Tip *Make a white screen using the Windows® Paint program.*

2. Press **MENU**.

3. Select Picture from the Main Menu.
4. Select Input Levels from the Picture Menu.
5. Select Auto White Level (Gain) and press **ENTER**.

The VideoWall/CineWall is now adjusted to the white levels of *this* computer using *this* video card. If you change computers or video output cards in the computer, you must do this again.

What is a "completely" new source? The VideoWall/CineWall remembers all the values in the last 10 pictures. If a new picture comes from a different source, such as from a different computer, and that picture has almost exactly the same resolution, number of active lines, number of blanking lines et cetera, the VideoWall/CineWall assumes that this is a source it has seen before and use the remembered setup values. This is a different sort of memory from the 40 numbered memories described in ***Memory*** on page 106.

On the other hand, if the new source is sufficiently different, the VideoWall/CineWall will engage all the checked processes in the Auto Setup Options menu (described on page 114).

When a saved memory is recalled from the Recall menu, the VideoWall/CineWall does not do any auto setup.

When to re-adjust levels: You should re-adjust black and white levels whenever:

- the computer is changed;
- the video card in the computer is changed, or you switch the source to a different video card output in the same computer;
- you replace the electronics module.

Adjusting to computer sources manually: In the unlikely event that you need to adjust input levels manually, proceed as follows:

1. Display an all-black picture from the source computer.
2. Press **MENU** on the remote.
3. Select Picture and press **ENTER**.
4. Select Input Levels and press the ▶ button.
5. Select Black Level (Offset) and adjust it up or down with the +/– keys to make the three CENTER POINT values go to zero. If they do not all touch zero at the same time, use the individual colors under Black Level (Offset) to adjust them.

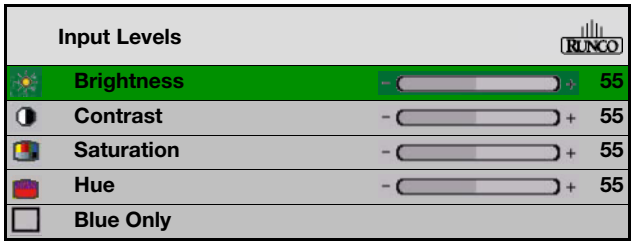
Note

Do not go beyond the point where the Minimum just goes to zero. The idea is to just touch the zero level.

6. Display an all-white picture from the source computer.
7. Select White Level (Gain) and adjust the levels until the CENTER POINT values just touch 255, adjusting the individual colors as necessary.

Input Levels – HDMI, Digital, Component, Composite or S-Video Sources

The Input Levels menu for HDMI, Digital, Component, Composite and S-Video sources, shown below, is simpler than that for Analog sources, but serves the same basic purpose: maximizing contrast without “crushing” (where lighter areas appear white or darker areas appear black).



Brightness: On your external test pattern source, select a PLUGE pattern. (PLUGE is an acronym for “Picture Line-Up Generation Equipment.”) Figure 3-8 shows a typical PLUGE pattern.

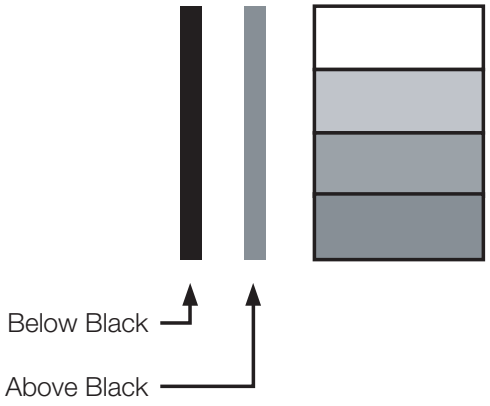


Figure 3-8. Typical PLUGE Pattern for Adjusting Brightness

PLUGE patterns vary but generally consist of some combination of black, white and gray areas against a black background. The example above includes two vertical bars and four shaded boxes.

Select Brightness from the Picture menu and press **ENTER**. Adjust the level so that:

- The darkest black bars disappear into the background.
- The dark gray areas are barely visible.
- The lighter gray areas are clearly visible.
- The white areas are a comfortable level of true white.
- The image contains only black, gray and white (no color).

Contrast: On your external test pattern source, select a stepped, gray-bar pattern like the one shown in Figure 3-9.

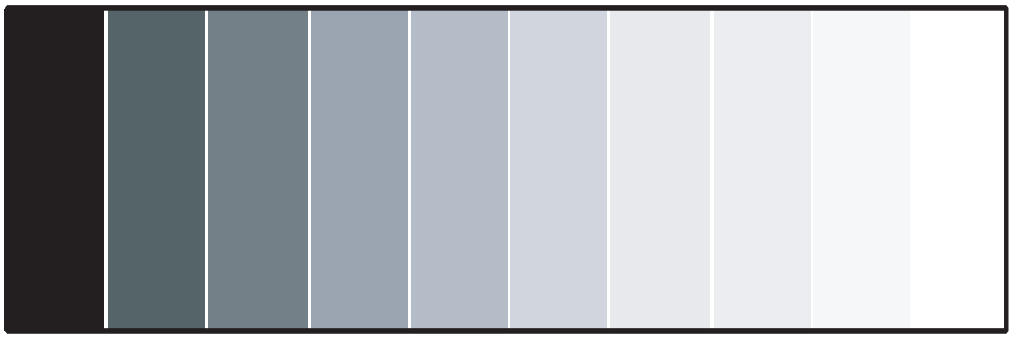


Figure 3-9. Typical Gray Bar Pattern for Adjusting Contrast

Select Contrast from the Picture menu and press **ENTER**. Adjust the contrast to a point just below which the white rectangle starts to increase in size.

Note

Brightness and Contrast controls are interactive. A change to one may require a subtle change to the other in order to achieve the optimum setting.

Saturation:

1. On your external test pattern source, select a color bar pattern like the one shown in Figure 3-10.

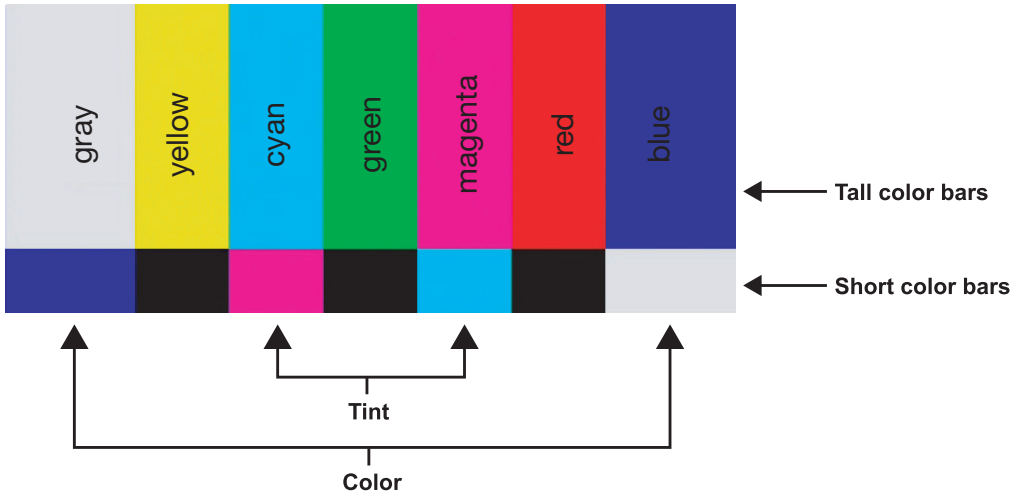
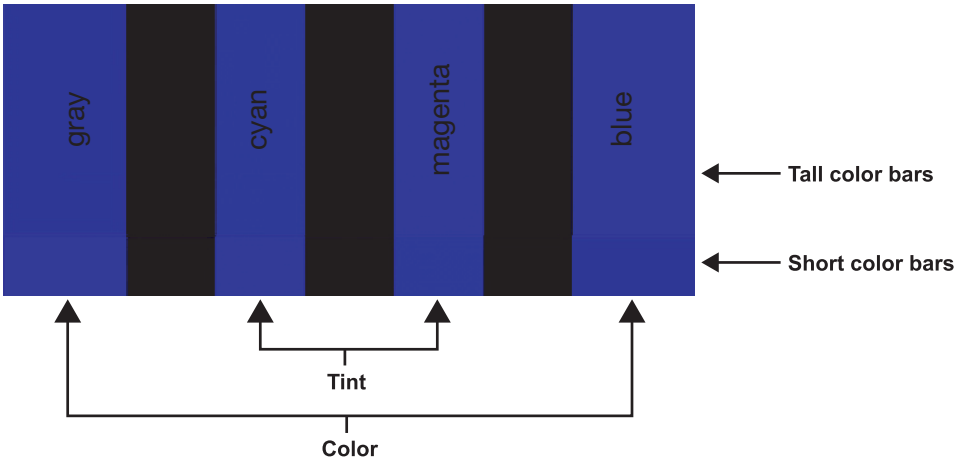


Figure 3-10. Typical Color Bar Pattern for Adjusting Color Saturation and Hue

2. Select Blue Only from the Input Levels menu and press **ENTER**.
3. Select Saturation from the Input Levels menu.
4. Adjust the color saturation level until the outermost (gray and blue) color bars appear to be a single shade of blue:



Hue: Hue or "tint" is essentially the ratio of red to green in the color portion of the image. When Hue is decreased, the image appears redder; when it is increased the image appears greener. To set the tint:

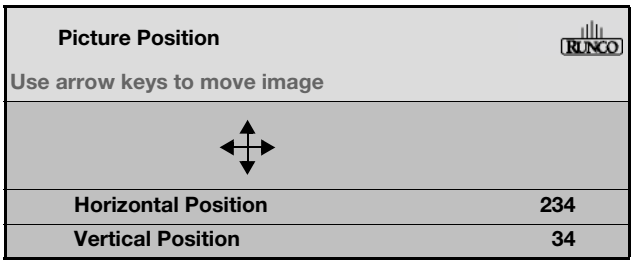
1. Select Blue Only from the Input Levels menu and press **ENTER**.
2. Select Hue from the Input Levels menu.
3. Adjust the tint level until the cyan and magenta color bars (on either side of the green bar) appear to be a single shade of blue.

Note

Like the Brightness and Contrast controls, the Saturation and Hue controls are interactive. A change to one may require a subtle change to the other in order to achieve the optimum setting.

◄ *Adjusting Image Position*

Use the Picture Position controls to center the picture on the screen. (This is NOT the same as optical engine alignment.)



To adjust the image position:

1. Press **MENU**.
2. Select Size & Position from the Main Menu.
3. Select Picture Position from the Size & Position Menu.
4. Use the four arrow keys move the picture on the screen.

The numbers for Horizontal and Vertical Position refer to the number of pixels from sync to the first displayed pixel. These numbers get smaller as the picture moves up and to the left.

Note

If you see a black edge on the screen and you can't move the picture to cover the black, you must adjust the optical engine position. Refer to ***Aligning the Image*** *on page 33 to do this.*

Saving Your Work and Recalling a Memory ➤

Using ISF Memories: Four memory slots are reserved for use by ISF-certified technicians. These are named “Day,” “Night,” “Custom 1” and “Custom 2.”

The ISF Memories are functionally similar to the other, numbered memory slots (described below), but provide some additional useful capabilities:

- The ISF Memories can be recalled by pressing a single button on the remote control, or via the ISF Memories menu. You do not need to enter a menu passcode or use the Memory menu (although it is possible to recall them this way).
- The “Custom 1” and “Custom 2” ISF Memories can be saved to – or their contents deleted – via the ISF Memories menu. You do not need to enter a menu passcode or use the Memory menu (although it is possible to save to or delete them this way).
- When you select an input, the previously-selected ISF memory slot is automatically recalled. The other, numbered memory slots are recalled only on command.

  If you change sources (switch to another input) and then switch back, everything you did before is “recalled.” Things will look like they did before.

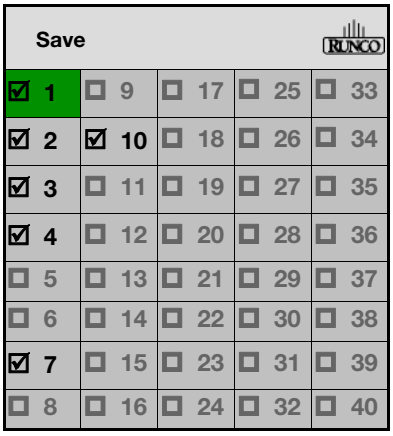
  Suppose you make adjustments to an SVGA source on the Analog input and save the settings. Then, you feed a UXGA source to the Analog input, make new adjustments and save the settings again. Then you switch to the S-Video input and do some more setup for it.

  Later you switch to the Analog input again, and this time it has the SVGA source from before. The VideoWall/CineWall will recognize that it has seen this source before, or at least a source with these characteristics, and will recall the ISF memory slot with the SVGA settings you established before.

Manually saving to memory slots: Some saving is done automatically, but there are big advantages to saving your work manually.

The VideoWall/CineWall has 40 numbered memory slots, and this is the best way to save. Recall is fastest from memory slots.

1. First, set up the VideoWall/CineWall the way you want it, including all the adjustments listed in this section.
2. Press **MENU**.
3. Select Memory from the Main Menu.
4. Select Save from the Memory Menu. This opens the Save grid.



5. Navigate to an unchecked slot number, or to a checked slot if you want to overwrite what's already saved. Press **ENTER**.
6. This menu shows all the data that will be saved. You can change the slot name in this menu but you can't change anything else.

Save				RUNCO
	Save to Slot			1
	Save Now (Overwrite)			
	Name	**RGB**		**1024x768**
	Source			Analog
	Resolution			1024x768
	Scale/Justify			16x9/Center
	Position			328,4
	Zoom UL/LR			+1, +0 / -1, +2
	Viewport UL/LR			+0, +0 / +0, +0
	Frequency/Phase			1344 / 0°
	Sharpness			7
	Black Level (Offset)	52	50	104
	White Level (Gain)	178	131	135

7. To save immediately, press **ENTER**. The appearance of this menu is somewhat different for digital and video sources, reflecting what is saved for them.

To change the name of the memory slot: The default memory slot name is an abbreviated description of its contents. If your customer wants or needs a more descriptive name, select the Name line and press **ENTER**.

Use the left-right arrow keys to navigate along the line. Use the up-down keys to change the character at that point. Press **PREV** when finished. Then select Save Now and press **ENTER** again. If you have RS232 control, there are commands to send a string name to a memory slot, saving time.

To manually recall a memory slot:

1. Press **MENU**.
2. Select Memory from the Main Menu.
3. Select Recall from the Memory Menu.
4. Navigate to the slot you want to recall. You can only land on slot numbers that are not empty (have checks).
5. Press **ENTER** to open the Recall detail menu. If this slot number has exactly the same settings are currently being used, a (Current) message appears on the top line.

Recall				
	Slot to Recall			1
	Recall Now			
	Name		RGB	1024x768
	Source			Analog
	Resolution			1024x768
	Scale/Justify			16x9/Center
	Position			328,4
	Zoom UL/LR			+1, +0 / -1, +2
	Viewport UL/LR			+0, +0 / +0, +0
	Frequency/Phase			1344 / 0°
	Sharpness			7
	Black Level (Offset)	52	50	104
	White Level (Gain)	178	131	135

6. The only line you can select is Recall Now. Press **ENTER**.

Note *The best practice is to recall settings from memory slots. It is faster.*

◄ ***Memory: What is Saved and Where***

Some parameters (values) are associated with a display "mode" – the horizontal and vertical resolution and the vertical frequency of the incoming source picture. (There are other characteristics that define the display "mode," but those are the primary ones.)

Some parameters are associated with a physical input: Analog, Component, Digital DVI, Digital HDMI, S-Video or Composite Video.

Some parameters are global; that is, they are not associated with a specific mode or input. They are universal.

Table 3-2 lists all saved parameters and their associations.

Table 3-2. Saved Parameter Associations

Parameter	Saved to ISF Memory	Global
Adjust Corners (Image Alignment)		x
ASCII Response Term.		x
ASCII Response Type		x
Auto Codes		x
Auto Lamp On		x
Baud Rate		x
Beeper		x
Black Level: R, G, & B	x	
Brightness (video)	x	
Color Balance (all values)	x	
Contrast (video)	x	
Curtain Pattern		x
Do Frequency		x
Do Phase		x
Do Position		x
Frequency	x	
Gamma		x
Group ID		x
Hue	x	
Justify	x	
Lamp Saver		x
Menu H Position		x
Menu Timeout		x
Menu V Position		x
Overscan	x	

Table 3-2. Saved Parameter Associations (continued)

Parameter	Saved to ISF Memory	Global
Phase	x	
Plug and Play (EDID)		x
Position, Horizontal	x	
Position, Vertical	x	
Resolution, Horizontal	x	
Resolution, Vertical	x	
Retry On Lost Signal		x
Saturation	x	
Scale Mode	x	
Sharpness	x	
Unit ID		x
Viewport Window Bottom	x	
Viewport Window Left	x	
Viewport Window Right	x	
Viewport Window Top	x	
White Boost		x
White Level: Red / Green / Blue	x	
Zoom Window Bottom	x	
Zoom Window Left	x	
Zoom Window Right	x	
Zoom Window Top	x	

Memory Slots: The VideoWall/CineWall has 40 memory slots. Each slot memorizes all of the mode-specific and input-specific parameters as well as the input connector used.

When you recall a memory slot, you recall exactly the way the VideoWall/CineWall was set up when the memory was saved.

- The change is immediate. There is no waiting for the VideoWall/CineWall to Do Frequency or Do Phase or anything else.
- The switch includes the correct input connector.
- You can give the memory slots descriptive names: “COMPUTER XL-61,” “MAIN DVD PROGRAM.”
- And there are 40 of them, not just 10.

4. Maintenance and Troubleshooting

4.1 Cleaning

➤ ***Cleaning the Screen, Mirrors and Lens***

Dirt is everywhere, and unless the VideoWall/CineWall is in a super-clean room, from time to time you will need to clean the screens, mirrors and/or lens.

Cleaning products and how to use them: For mirrors and screens, a foam spray cleaner works well. It is sold under different names in different parts of the world. It is available from many janitor supply companies or building maintenance supply companies. Ask for Claire #50 glass cleaner, or Sprayway #50 glass cleaner. It is probably sold under a local name, but it all comes from one company. If you ask for either of the two names above (it is sold under both), you will get this cleaner under the local name.

This cleaner contains no ammonia and works well on glass (screens, lenses, mirrors) and acrylic (screens). Spray it on the mirror, but not on the screen. ***For screens, spray it on the cloth, not the screen.***

WARNING ***DO NOT spray liquid of any kind on the screen.*** *It can drip down the screen and wick up between the layers. When liquid gets between the screen layers, it is impossible to remove, and the screen is ruined!*

WARNING ***DO NOT wipe the inside of the screen for any reason.*** *This can cause immediate and permanent damage to the screen.*

Wipe the mirror or screen gently with a lint-free cloth or lint-free paper (refer to ***Cloth to use***, below). Turn the cloth over to the dry side and continue wiping to take up the haze.

- Glass Wax™ is another good cleaner for mirrors and glass screens, but it does not work well on acrylic screens. It is a liquid in a can. You spread it on, let it dry, then wipe it off.
- Windex™ works well, too. ***Just don't spray it on the screen.***

Cloth to use: White cotton cloth is better for cleaning than colored cloth. The dyes in some colored cloth tend to make it less absorbent.

Paper towels tend to leave lint and are therefore not recommended for cleaning lenses. A better paper towel for cleaning is Scott® Shop Towels. These blue, lint free, paper towels are widely available at auto parts stores, home improvement stores and hardware stores.

Cheesecloth is another good choice. This open-weave cotton material is light and absorbent.

Removing dry dust: Often the cleaning problem is just dust, not fingerprints or other oily dirt. If it's just dust, wiping with a dry cheesecloth or a dry Shop Towel will usually do the job.

Or use one of the cleaning products designed specifically for picking up dust.

- Pledge Grab-It™, from Johnson
- Swiffer™, from Proctor and Gamble.

These are synthetic wipes that have a static charge that holds onto dust. They do a very good job of picking up dust and leaving no lint behind. However, they will not wipe away grease or oil, such as fingerprints, and they can't be used with liquid cleaners.

Cleaning lenses: Clean lenses as you would the glass mirrors. Use a soft, absorbent cotton cloth rather than a paper towel. Because the lens is small, it is easier to spray the cleaner (if you use one) on the cloth, not the lens itself.

Where is the dirt? ➤ When you see dirt in the picture, you can sometimes tell where it is by its focus. Use a white test pattern to see the dirt most easily.

Small specs of dirt or dust that are in very sharp focus are on the screen itself.

If the dirt is in soft focus, it is probably a smudge on the large mirror.

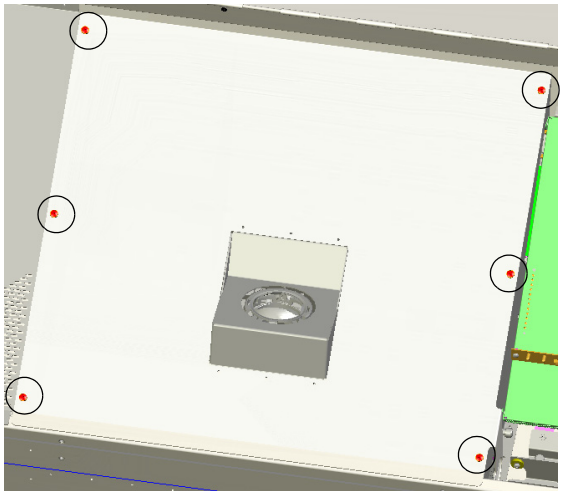
Dirt on the output lens cannot be seen in the picture. However, that does not mean you should not clean this lens. Dirt here will reduce the brightness of the picture, but it won't show up as specs in the picture.

4.2 Lamp Replacement

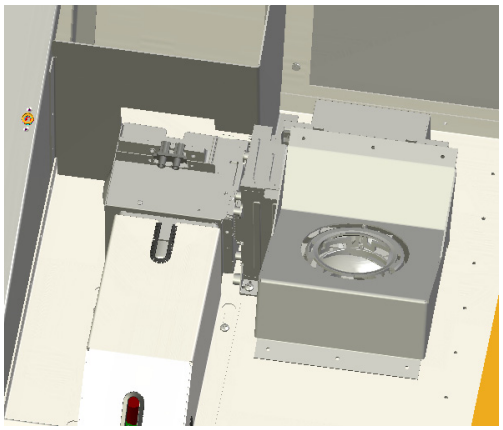
Change the lamp after 6,000 hours of use, or sooner if you notice a significant decrease in brightness.

➤ *Removing the Old Lamp*

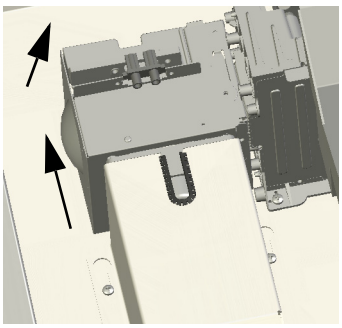
1. Open the screen.
2. Turn off the AC power switch and remove the power cord.
3. Loosen the six screws holding the display engine compartment cover in place. Then, remove the cover.



4. Loosen the lamp screw to the right rear of the lamp.



5. Disconnect the lamp cable.
6. Pull the lamp away from you, then straight up.



Installing the New Lamp ➤

1. Re-connect the lamp cable you disconnected in Step 5 above. Make sure it is fully seated.

   WARNING *If the lamp cable is not fully seated on the lamp plug, the lamp will not operate properly. Overheating may occur.*

2. Mount the lamp in its place. Note the two pins opposite the lamp screw. These fit into holes in the optical engine.
3. Tighten the screw you loosened in Step 4 above.
4. Replace the display engine compartment cover.
5. Re-connect the AC power cord and set the main power switch to the "on" position.
6. Close the screen.

Resetting Lamp Hours ➤

ALWAYS reset the lamp hours to zero when you install a new lamp. To do this:

1. Turn on the VideoWall/CineWall using the remote control.
2. Press **MENU** on the remote control and select ***Diagnostics*** from the Main Menu.
3. Select ***Hours*** from the ***Diagnostics*** menu, highlight ***Reset Lamp Hours*** and press **ENTER**.

How to Maintain Lamp Life ➤

There are some actions that can shorten lamp life:

- Turning off AC power when the lamp is on. (Turn off the lamp with the remote and let it cool until the fans stop; then turn off AC.)
- Turning a lamp on and off rapidly. (The lamp should be allowed to heat up fully before turning it off, at least three minutes.)

4.3 Filter Replacement

Clean, cool air is essential for proper VideoWall/CineWall operation.

When the air filter gets dirty, change it. Unfortunately, there is no absolute rule about when to change an air filter. For some installations the environment has clean, dust-free air, in which case the air filter may be good for a year or more.

In other environments, the air full of dust and dirt all the time. The air filter might have to be changed every month. Of course, it also depends on how many hours per day or per week the lamp is on.

Determining a Changing Schedule ➤

Remove and inspect the air filter after three months of operation. Make a note of the air filter's condition. Check it again after six months of operation.

These two inspections will give you some idea of how often the filter needs changing. If it doesn't need changing after six months, inspect it again in a year. As long as the environment doesn't change, you can build an appropriate schedule in this way.

If new construction occurs in the vicinity of the VideoWall/CineWall, beware; new construction usually means DUST.

Removing the Air Filter ➤

1. Open the screen.
2. Turn off the AC power switch and remove the power cord.
3. Lift the air filter up and toward you. Then, replace it with a new one (Runco part number 379-0012-00).

4.4 Troubleshooting Tips

➤ ***On-Screen Codes***

The VideoWall/CineWall provides several features for identifying and resolving product performance issues. If the solutions suggested here fail to resolve your issue or if you encounter an issue not described, please contact Runco Technical Support.

The On-Screen code is a sequence of red and amber lights that flash on the screen to indicate what is wrong. These flashing lights are particularly helpful when the lamp won't turn on.

Turning on the On-Screen Codes: To view the On-Screen codes, do one of the following:

- Select ***Unit Status*** from the ***Diagnostics*** menu.
- On the remote control, press and hold the **ISF NIGHT** button while simultaneouly pressing the **MENU** button. (Use this method if the lamp won't turn on.)

You should see the red or amber lights flashing on the screen. You should also see the ***Unit Status*** menu, unless of course the lamp is off.

If the picture is bright, it may be difficult to see these lights. They are soft, out of focus lights. Move around to see them. Or, send the RS-232 command `CURTAIN` to make the screen black so they will be easier to see. (For more information on RS-232 commands, refer to ***Serial Communications*** on page 57.)

If you see a steady, unblinking, amber light, it means the lamp is on and there are no alarm conditions. If the screen is black at this time, it could be for any of the following reasons:

- The curtain is on and black.
- The source itself is a black picture.
- There is no source, which turns the screen black.
- There is some foreign object blocking the light path.

Automatic On-Screen code display: If ***Auto Codes*** is checked in the ***Miscellaneous Options*** menu, the code appears whenever there is a fault event that forces the lamp off.

Table 4-1 lists the On-Screen codes and describes their meaning.

Table 4-1. VideoWall/CineWall On-Screen Codes

	Condition	Priority	Each block represents 0.2 seconds																	
Starts with Red Lamp is off	Door open	1	R		R		R													(Note 3)
	Power Supply Fan failed	2	R		Amber															
	DLP™ Fan failed	3	R		Amber				R											
	380V failed	4	R		R		Amber													
	Optical Engine failed	5	R		R		Amber				R									
	Lamp failed	6	R		R															
	Lamp off (wait, auto off) [4]	7	R		R		Amber				Amber									
	Wait (lamp off, cooling)	8	R		R		R		R											
Starts with Amber	Fan Failed (non-critical)	9	Amber				R		R											
	Lamp off (lamp saver) [5]	10	Amber				Amber				R									
	Lamp off (ready to turn on)	11	Amber				Amber													
	Lamp striking (starting)	12	Amber				Amber				Amber									
	Lamp on, no alarms	13	Amber on continuously																	

Notes:

1. R = Red

*2. To view on-screen codes, select **Unit Status** from the **Diagnostics** menu, or press and hold the **ISF NIGHT** button while simultaneouly pressing the **MENU** button on the remote control.*

*3. With Priority 1 through 6 events, to turn the lamp on, cycle AC power off, then on. If **Auto Codes** in the **Miscellaneous Options** menu is checked, events with Priority 1 through 5 start the On-Screen Code automatically.*

4. Lamp Saver turned lamp off; lamp is cooling and will turn on at end of cooling period.

5. A Lamp On command from the remote control or via RS232 turns the lamp on.

➤ *Status LEDs*

The LEDs on the electronics module can give you more detailed information about the current operational state of the VideoWall/CineWall. To see them, open the screen.

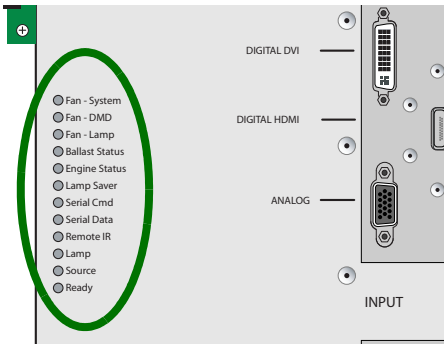


Table 4-2 describes the VideoWall/CineWall LED status indications.

Table 4-2. VideoWall/CineWall Status LED Indications

LED Name	When the LED is...			
	Off	**Green**	**Amber**	**Red**
Ready	Lamp is on (or no power)			
Source	Source absent	Valid source present		Source absent or not valid
Lamp	Lamp off	Lamp on	Lamp striking	Lamp failed
Remote IR	Not receiving IR now	Receiving IR signal		
Serial Data	No command received	Received any command		
Serial Cmd		Received command addressed to “this” unit		
Lamp Saver	Lamp Saver not active or lamp is off	Lamp Saver active Source present Lamp on	Active Lamp is cooling Source present Lamp will come on when cooled	Active Source absent Lamp off
Engine Status		Optical engine OK		Optical engine fault or communication failure
Ballast Status	Lamp off	Lamp on		Ballast fault or communication failure
Fan-Lamp	Fan off	Fan is running	Fan failed recently but is now running	Fan failed
Fan-DMD				
Fan-System				

Isolating Faulty Parts ➤

If you suspect that a part may be faulty, replace it with a known-good one if available. This is a very effective way to find a problem. If the problem goes away, the original part was at fault.

If the problem persists, you haven't found the problem yet, but you have learned something: the original part was not the problem. Re-install it and try something else.

If the Lamp Won't Light: Check to make sure the lamp is actually ***not*** lit. If the lamp is lit, you can usually see light come through spaces between parts if you look carefully.

Many things can make the screen black, even though the lamp is lit:

- The Curtain may be on. If the curtain is black and it is on, the screen will be black.
- There is no source picture. With no valid picture coming in, the display will be black.
- There is something blocking the light to the screen. Is the lens cap on?
- There are parts missing in the optical path. If someone was working on the display, maybe he or she forgot to put something back in.

If the lamp is not lit:

- The VideoWall/CineWall may not be receiving AC power. Check the main AC switch on the display. It should be lit.
- The lamp ballast may not be receiving power. Some displays have a green LED near the main AC switch that lights when the 380-volt part of the power supply is working. It should be lit. Other displays may have an LED on the electronics module to show when this high voltage power is available.

WARNING *Always turn off the AC power and remove the power cord before working inside the display and before removing a lamp.*

- If the lamp is OK, try swapping the ballast in the same way. The lamp ballast provides power to the lamp. It is an electronic part, and all electronic parts are eventually subject to failure.
- A fan may have failed. Most fans are sensed. That means the electronics module knows whether they are running or not. If they don't run when they should, the electronics module turns off the lamp and prevents it from striking (turning on) again.

Swapping other parts: You can swap electronics modules or fans in the same way to see if one is bad.

Note *When you swap fans, always exchange fans of the same size.*

Why not use a new part out of the box? It may seem like a good idea to take a new part out of the box and substitute it for a suspected part in the display. However, there is a very tiny chance that the part in the box doesn't work. If you test a part by putting in a known good part, you get better information.

5. Serial Communications

5.1 RS-232 Connection and Port Configuration

To interface the VideoWall/CineWall with a home theater automation/control system or a PC running terminal emulation software:

1. Connect it to your control system or PC as shown in Figure 3-6.
2. Press **MENU** on the remote control and enter the Installer Menu passcode.
3. Select Advanced Options from the Main Menu.
4. Select Serial Port Settings from the Advanced Options menu.
5. Note the Baud Rate setting; change it if desired.
6. Start a terminal session on your PC using a terminal-emulation program, such as HyperTerminal.
7. Configure the RS-232 controller or PC serial port as follows: no parity, 8 data bits, 1 stop bit and no flow control. Set the baud rate to match that of the VideoWall/CineWall RS-232 port (see Step 5).
8. To test your serial connection, type **`ky 00 menu`** and press **`<Enter>`**. If the Main Menu appears on-screen, the connection is active and working correctly. The VideoWall/CineWall also responds with `ACK` in the terminal session window.

5.2 How to Form Commands

Here are some basic rules for composing serial commands:

- RS232 commands consist of a string of ASCII characters.
- All numeric values are decimal; you do not need to use hex or binary digits in the commands.
- Spaces or tabs may be used in the commands to separate the parts and make them easier for humans to read. This “white space” is ignored by the command reader in the VideoWall/CineWall.
- You cannot use commas, slashes, or other punctuation as separators. Periods have a special purpose in commands.
- Commands are not case sensitive, so you can use upper and lower case letters as you wish, EXCEPT the first two letters of every command must be both upper or both lower case. After that, it doesn’t matter.
- When a command requires a response, wait for the response before sending another command to another display.
- All commands must end with a carriage return character, shown as <code>[CR] in the rest of this document. Depending on your serial communications program, commands may automatically be ended with a <code>[CR]. If you are uncertain whether your application automatically does this, send a test command such as `ky 00 menu` without a <code>[CR]. If the menu displays on screen, you will not need to insert a <code>[CR]. If nothing happens, you will need to add a <code>[CR] at the end of each command.

5.3 Types of Commands

The VideoWall/CineWall supports two types of commands: key commands and operation commands.

Key Commands ➤ Key commands mimic pressing a button on the remote control. This is only useful if you can see the screen, otherwise you won't know where the selector is in the menu.

Operation Commands ➤ Operation commands tell the display exactly what to do, allowing more flexible and direct control of the display. For example, with operation commands, you can:

- Set green in the white color balance to 27
- Turn off the lamp
- Save the current settings into memory slot 23
- Recall memory slot 7

Operation commands can ask questions and get answers, such as:

- What is the state of the lamp? (on, off, failed, etc.)
- Is the Auto Lamp feature on or off?
- Which connector is used if memory slot 3 is recalled?

String Commands ➤ String commands send strings of characters to the display. String commands can also retrieve information from the display. For instance,

```
ST 00 BUILD.DATE? <code>[CR]
```

returns the build date of the firmware:

```
ST 00 BUILD.DATE= "SEP 17 2008 at 17:41:49"
```

5.4 Addresses in Commands

All commands must be addressed. Each display has a two-character ID that is unique to it. The two characters can be 0-9, A-Z. The first character is the **Group ID**, and the second one is the **Unit ID**. The default Group ID and Unit ID are both 0. When communicating with only one display, it is not necessary to change either ID.

Note *Whenever a command is sent to an **individual** ID, wait for the response before sending a second command.*

You can also use the "wild card" character (**) to address a display.

Direct Addressing ➤ There is another way to address displays: **direct** addressing. When the address is two hyphens (--), the first connected display receives and executes the command.

Direct addressing is handy when you want to control a display, but you don't know its ID. Just connect a serial cable straight to the display and use direct addressing.

5.5 Command Structure

All commands start with **two letters**:

OP or op for operations commands (but not Op or oP)

KY or ky for key commands (but not Ky or kY)

ST or st for string commands (but not St or sT)

The next two characters are the **address**.

The next section of the command is the operation, the remote key, or the string, the main part of the command telling the display what to do.

A few commands have a 'target.' For example, to adjust white balance, you must state which color to change: red, green, blue, or all. Or to determine whether a memory slot is empty, you must target the memory slot number. **The target is always in (parentheses).**

The next character is the command function symbol.

There are five function symbols:

Operations Control Commands		
Function	**Command**	**Action on unit**
Set	= <value>	Makes the unit take that value.
Get	?	Asks what the current value is.
Increment	+	Adds 1 to the current value.
Decrement	-	Subtracts 1 from the current value.
Execute	(none)	Performs an action such as a reset.

The command type can be one of 5 functions:

- Some commands are Execute only, such as resetting the lamp hours.
- Others are Set and Get only, such as setting the curtain pattern or asking what the curtain pattern is.
- Some are Get only, such as getting the horizontal frequency of the source.
- And some are Set, Get, Increment, Decrement, such as color balance.
- The last part of the command, for Set commands only, is the **value**. The value may be a number or one or two words.

Sample Operation Commands	
Command Example (Note)	**Explanation**
`op 00 auto.position.disable = DISABLED [CR]`	Disable the auto position feature in display 00
`op 00 auto.position.disable ? [CR]`	Is the auto position feature enabled or disabled in display 00?
`op 00 brightness + [CR]`	Increment the brightness in all displays with Group ID 0
`op 00 curtain [CR]`	Turn on (or off, if it is already on) the curtain
`op 00 center.point (red) ? [CR]`	What is the value for the red pixel at the center (sampling) point?
Note: *The command line must always end with a carriage return character, noted in the examples above as [CR]. The VideoWall/CineWall will not act on the command unless the last character is a carriage return character (ascii hex value: 0D).*	

Sample Key Commands	
Command Example (Note)	**Explanation (Note)**
`ky 00 menu [CR]`	Press the **MENU** button on the remote for display 00
`ky 00 down [CR]`	Press the down arrow on the remote for display 00
`ky 00 enter [CR]`	Press the **ENTER** button on the remote for display 00
Note: *As you can see from Sample Key Commands sequence, if you are not looking at the screen, you won't know what you just did. You don't know where the cursor was at the start.*	

Sample String Command	
Command Example (Note)	**Explanation**
`st 00 revision ?<code>[CR]`	What is the revision level of unit 00?

The Operation Commands table starts on page 71.

5.6 Using the Operation Commands Table

◄ ***Operations and Operation Numbers***

The commands are listed in alphabetical order by Operation. In a command, you may use either the **ascii text** of the operation or its **Operation Number**. For instance, to get the aspect status, all these commands are equivalent:

```
op 38 auto.level.status ? [CR]
op38auto.level.status? [CR]
op 38 1115 ? [CR]
op381115? [CR]
OP  38   aUto.LEveL.STAtus   ?     [CR]
```

◄ ***Target***

If the Target column has anything in it, the command must use one (and only one) of the targets, and it must be in parentheses. Use either the ascii text or the Target Number. These are equivalent commands:

```
op2a center.point (red) ? [CR]
op2A1110(0)? [CR]
```

◄ ***Command Types Allowed***

Table 5-1 describes the allowed command types.

Table 5-1. Command Types

Symbol		Meaning	Example	Result
=	Set	tells the display to take the value that follows	`op 4* white.balance (all) = 100 [CR]`	All displays with a Group ID of 4 (and Unit ID of anything) will set their white balance levels for red, green and blue to their maximum of 100
?	Get	asks for the value	`op 09 contrast ? [CR]`	Tells display 09 to send the value of contrast to the host computer. Note that the display will ***only*** respond if it is addressed individually.
+	Increment	increments the value	`op ** gray.balance(red) + [CR]`	Makes all the displays increase their Gray Balance value by one. Note that any display whose value is already at the top (in this case 15) will not increase it.
–	Decrement	decrements the value	`op ** white.balance(green) - [CR]`	Makes all the displays decrease their White Balance value by one. Any display that had a white balance of 1 before the decrement will not change.

Table 5-1. Command Types

Symbol		Meaning	Example	Result
[none]	Execute	means the command is executed. No character follows the command (or the Target, if it has one)	`op 04 lamp.hours.reset [CR]`	Resets the lamp hours meter for the Lamp in unit 04.

Note

Any word or character or phrase that appears between [square brackets] is for information or clarification only. It is not sent to the display or received from it.

Values ➤ The Value may be sent as text or as a value number. In this column, some values have no text, such as the command `auto.level.status`. This command takes a value of 0 through 4, not “idle” or “working with black”, etc. It replies with the same numerals, never words.

Text values can be sent in upper or lower case or with mixed case. They are listed in UPPER CASE in the table to make it easier to see the difference between the value and any [explanation].

[varies] means the range of acceptable values and replies varies with the type of source.

Reading the Response ➤ Two commands establish the features of the replies. (Remember the displays only reply when individually addressed.)

`ascii.eol` determines the End Of Line character the display will send at the end of every command.

`ascii.response` determines how you want the replies to look when they come back to you.

- `Symbolic` means the replies will come back as ascii characters, if the value column allows them.
- `Numeric` means that the Value Number will come back
- `Data` means that only the value is returned, not the preceding information

The following table shows examples of each setting for `ascii.response` and three possible responses:

Command Sent	Response	Explanation
op 00 ascii.response = symbolic <code>[CR]	OP 00 ASCII.RESPONSE=SYMBOLIC	The unit received the command and has set the response type to symbolic and replies will be ascii characters
op 00 curtain.pattern ? <code>[CR]	OP 00 CURTAIN.PATTERN=BLACK	The curtain pattern is set to black.
op 00 ascii.response = numeric <code>[CR]	OP 00 1137=1	The unit received the command and has set the response type to numeric and will reply with the value number
op 00 curtain.pattern ? <code>[CR]	OP 00 OP 00 1036=6	The curtain pattern is set to black.
op 00 ascii.response = data <code>[CR]	ACK	The unit received the command and has set the response type to data and will reply with only a number
op 00 curtain.pattern ? <code>[CR]	6	The curtain pattern is set to black.

Note

Responses are always in ALL CAPS, regardless of how the query was sent.

5.7 Using Key Commands

Key commands always start with `ky` or `KY`. There are two kinds of key commands, command word and numeric equivalent commands.

Command Word Key Commands

Command word key commands simulate pressing a button on the remote. For example, the command:

```
ky 00 menu  [CR]
```

simulates pressing the menu button for display 00. All the other named buttons on the remote control can be “pressed” in this manner by using the name on the remote.

Figure 5-1 shows the command word for each named key.

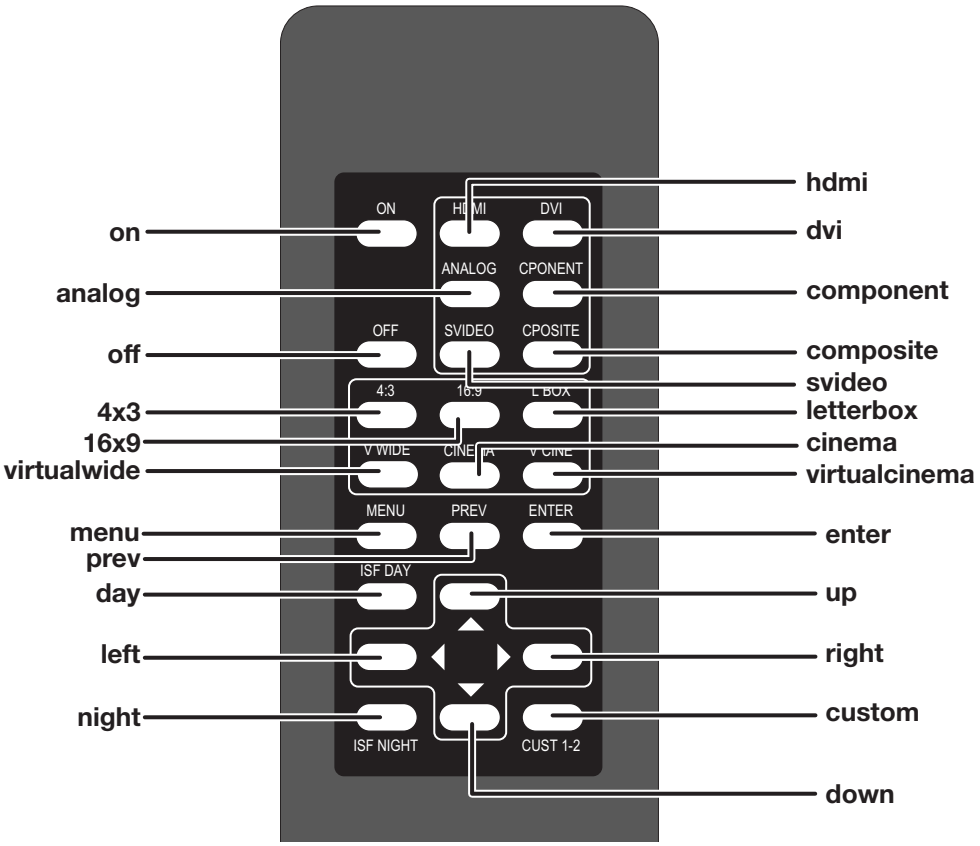


Figure 5-1. Remote Control Button Names Used in Serial Commands

◄ *Numeric Equivalent Commands*

Numeric equivalent commands also simulate pressing a remote button. For example, the command:

```
ky 00 r50   [CR]
```

simulates pressing the **MENU** key on the remote. All the keys have “R” numbers associated with them.

Figure 5-2 shows the numeric equivalents for the remote control buttons used in serial commands.

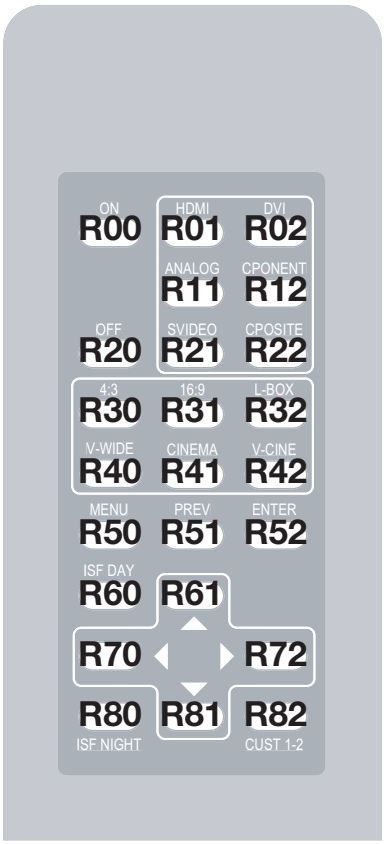


Figure 5-2. Remote Control Button Numeric Equivalents

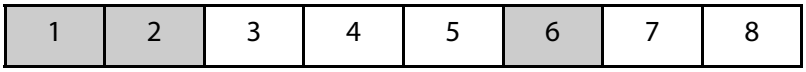
5.8 Examples of Operation Commands

Recalling Memories ➤

Remember: The slot target number used in the command is ***one less than*** the memory slot number as seen in the menus. For example, to recall memory slot #40, in commands you'd specify `slot.target = 39`. Likewise, to recall the first slot, you'd specify `slot.target = 0`.

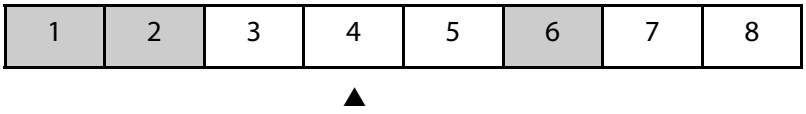
Recalling Memories Directly: Use `slot.recall ( )` . Put the memory number (minus 1) in the parentheses.

What is the difference between `slot.recall.target` and `slot.target?`
Assume that memory slots #1, #2, and #6 are used (full). Memory slots #3, #4, and #5 all the others are empty, as shown in the illustration below:

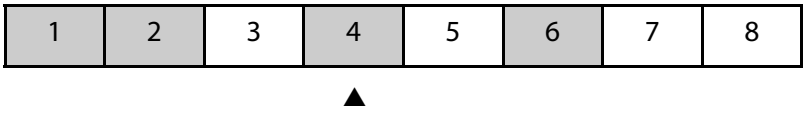


The following series of example commands show the difference between `slot.target` and `slot.recall.target` and which memory slot the command is pointing to.

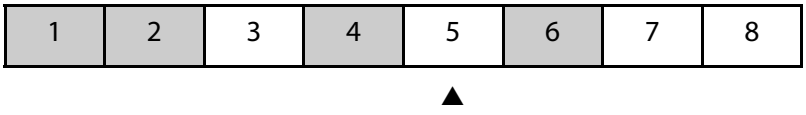
`op 17 slot.target = 3 [CR]`	This sets the memory slot to #4 in unit 17. Any further commands that need a memory slot will use this one until it is changed.



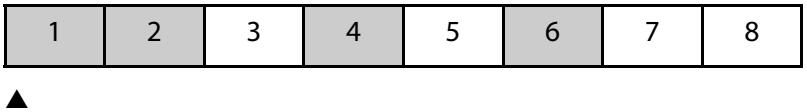
`op 17 slot.action (save) [CR]`	This saves all the current settings into memory slot #4 with the default memory name.



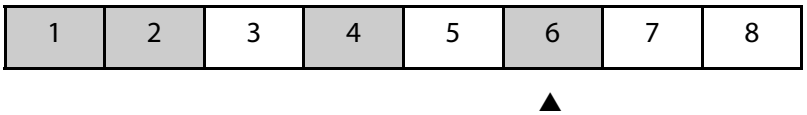
`op 17 slot.target = 4 [CR]`	This sets the memory slot to #5, which is empty.



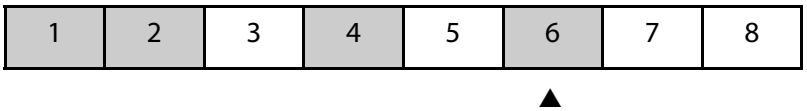
`op 17 slot.action (recall) [CR]`	This action fails, because there is nothing in slot #5. Nothing happens to the picture on the screen; it does not change.



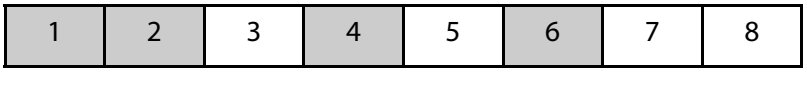
`op 17 slot.recall.target = 5 [CR]`	Sets the memory slot to #6.



`op 17 slot.action (recall) [CR]`	This recalls slot #6 because the target was set to #6 in the previous command.



`op 17 slot.action (recall) [CR]`	Recalls settings from memory slot #1.



Asking (Get) and Telling (Set) ➤

To ask about a value or condition, use a question mark [?]. No character should follow the question mark. To set a value or condition, use an equal sign [=]. A value must follow the equal sign.

Command Example (Note)	Explanation
`op 00 auto.lamp ? [CR]`	asks whether the auto lamp feature is on or off for display 00.
`op 1* auto.lamp = on [CR]`	turns on the auto lamp feature for each display that has a Group ID of 1 (and any Unit ID).
`op 0* auto.lamp ? [CR]`	won't work. All queries [?] must be addressed to individual displays only; no asterisks [*] in the command line.
Note: *The command line must always end with a carriage return character ([CR]). The VideoWall/CineWall will not act on the command unless the last character is a carriage return character (ascii hex value: 0D).*	

Types of Responses ➤

Responses from the display can be Symbolic (mostly text), Numeric (mostly numbers), or Data Only. Whenever a command is sent to an individual ID, wait for the response before sending a second command.

Table 5-2. Symbolic Response Examples

Command and Response Examples	Explanation
`op 50 auto.lamp ? [CR]`	would get the Symbolic response
`OP 50 AUTO.LAMP=DISABLE`	Text in responses are all caps, regardless of what you sent.

Table 5-3. Numeric Response Examples

Command and Response Examples	Explanation
`op 50 auto.lamp ? [CR]`	would get the Numeric response
`OP 50 1037=0`	Notice that you can send commands as text and get the response as numeric. 1037 is the Operation Number for `auto.lamp`, and 0 means Disabled. It works the other way, too. Ask the question with all numbers and get a text response, if `ascii.response` is set to Symbolic.

Table 5-4. Data-Only Response Examples

Command and Respond Examples	Explanation
`op 00 auto.lamp ? [CR]`	would get the Data-Only response
`0`	You get only the answer and only in numeric form. This is used mainly when a sequence of commands is sent and the data is acted upon by the program. For instance, the program might query each display as to its lamp state, on or off, then send a Lamp On command to just those displays that are off.

Note

Keep in mind that displays only respond when they are individually addressed.

Notes:

5.9 Operation Commands

All commands are Operation commands which should start with “op”, except those marked with [ST] which are String commands.

For String commands, use the form `ST -- build.date ?`, and substitute the unit ID for the `--`. There is no target for string commands.

Table 5-5. Operation and String Commands for VideoWall/CineWall

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
1	ascii.eol	1138			=	?			CR CRLF LF LFCR	0 1 2 3	Determines the End Of Line character used in replies.
2	ascii.response	1137			=	?			SYMBOLIC NUMERIC DATA [only]	0 1 2	Determines the style of the reply: SYMBOLIC replies with the Value [except for what is in square brackets]; NUMERIC replies with the Operation number and Value number; DATA replies with the Value number only.
3	aspect	1054			=	?			FILL 16X9 ONE.TO.ONE 4X3 VIRTUAL.WIDE VIRTUAL.CINEMA LETTERBOX CINEMA	0 3 4 5 7 8 9 10	FILL SCREEN 16x9 ONE TO ONE 4x3 VIRTUALWIDE VIRTUAL CINEMA LETTERBOX CINEMA
4	aspect.status	1092				?			EQUAL TALLER WIDER	0 1 2	TALLER and WIDER refer to the source picture being taller than or wider than the aspect ratio of the screen.
5	auto.codes	1132			=	?			DISABLE ENABLE	0 1	

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
6	auto.frequency.disable	17421			=	?			NOT.DISABLED DISABLED TOGGLE	0 1 2	
7	auto.lamp	1037			=	?			DISABLE ENABLE	0 1	
8	auto.level	1116			=				BLACK WHITE	1 2	Initiates the Auto Level process of either Black Level or White Level.
9	auto.level.disable	17423			=	?			NOT.DISABLED DISABLED TOGGLE	0 1 2	
10	auto.level.status	1115				?			0 [idle] 1 [working on black] 2 [working on white] 3 [error black] 4 [error white]		"error" means the sample pixel is not black (or white). This has a wide tolerance, but prevents auto black level operating on a white pixel, or auto white operating on a black pixel.
11	auto.phase.disable	17420			=	?			NOT.DISABLED DISABLED TOGGLE	0 1 2	
12	auto.position.disable	17422			=	?			NOT.DISABLED DISABLED TOGGLE	0 1 2	
13	auto.resync.disable	17438			=	?			NOT.DISABLED DISABLED TOGGLE	0 1 2	
14	auto.setup	16899			[execute]						
15	ballast.dim.level	1210			=	?	+	–	0 = minimum wattage 255 = maximum wattage		For maximum lamp life, use the minimum wattage. Instead of 0 or 255, the number returned is the wattage of the lamp in your system; for example, 156.
16	ballast.ratio	1215				?			0 – 999		Current x 100 (800 = 8.0 amps)

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
17	ballast.status	1239				?			0 – 255		Waveform ID
18	ballast.sw.version	1216				?			0 – 65535		Ballast firmware revision
19	ballast.temp	1214				?			0 – 130		temperature in Celsius
20	ballast.voltage	1213				?			0 – 255		voltage at the lamp
21	baud	1143			=	?			2400 4800 9600 19200		baud rate CAUTION: The baud rate changes immediately after a set (=) command, so the response will be unreadable. In order to restore RS-232 communication, you must change your terminal program to use the new baud rate after you send a baud rate set command.
22	beep	1074			=	?			0 [single beep] 1 [triple beep]	0 1	
23	beep.enable	1076			=	?			DISABLE ENABLE	0 1	
24	beep.force	1075			=				0 [single beep] 1 [triple beep]	0 1	Forces a beep whether beep is enabled or not.
25	blue.only	1057			=	?			DISABLE ENABLE	0 1	
26	brightness	16387			=	?	+	–	0 – 255		Applies to composite, component and S-video sources only. This will only go to 223 for composite and S-video.
27	build.date [ST]	1				?					Retrieves text: firmware compilation date and time.
28	bytes.received	1140	RS232 AUX232	0 2		?			0 – 32767		Used only to indicate that bytes have been received. Resets to zero upon reaching its maximum value.

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
29	bytes.sent	1141	RS232 AUX232	0 2		?			0 – 32767		Used only to indicate that bytes have been sent. Resets to zero upon reaching its maximum value.
30	center.point	1110	RED GREEN BLUE ALL	0 1 2 3		?			0 – 255		The center point is the one pixel used by auto level.
31	clear.input.memory	16902				[execute]					Makes the display “forget” any sources it has seen before.
32	clipboard.gray.balance	1163	RED GREEN BLUE ALL	0 1 2 3		?			0 – 15		
33	clipboard.recall	1161				[execute]					
34	clipboard.save	1162				[execute]					
35	clipboard.white.balance	1164	RED GREEN BLUE ALL	0 1 2 3		?			0 – 100		
36	color.temp	1268			=	?			3200K 5500K 6500K 8500K NATIVE CUSTOM	0 1 2 3 4 5	
37	commands.received	1107	RS232 AUX232	0 2		?			0 – 32767		Used only to indicate that commands have been received. Resets to zero upon reaching its maximum value.
38	contrast	16388			=	?	+	–	0 – 255		Applies to composite, S-video and Component video sources only.

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
39	curtain	1035			[execute]			
40	curtain.pattern	1036			= ?	NONE WHITE RED GREEN BLUE BLACK LOGO	0 1 3 4 5 6 12	0 = no pattern displayed now
41	custom.pattern	1237	RED GREEN BLUE ALL	0 1 2 3	= ? + –	0 – 255		
42	display.power	1094			= ?	OFF ON	0 1	This turns on/off lamps.For queries, system.state provides more information.
43	dynamic.black	1350			= ?	DISABLE ENABLE	0 3	
44	engine.on	1277			?	OFF ON	0 1	
45	fan.state	1096	POWER.SUPPLY LAMP DMD SYSTEM	0 1 4 6	?	ON OFF FAILED WAS.FAILED	0 1 2 3	WAS.FAILED means the fan failed and was restored to operation, but the AC power was not recycled.

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
46	fault.state	1175				?			FAN LAMP WAIT.THEN.ON WAIT LAMP.SAVER READY OK DLP STRIKING ENG.FAN WARMING.UP FAN.NONCRITICAL	1 4 5 6 10 11 12 13 14 15 16 18	
47	frame.lock.enable	1292			=	?			DISABLE ENABLE	0 1	When disabled, unit will not try to frame lock.
48	frame.locked	1275				?			DISABLE ENABLE	0 1	
49	frequency	16404			=	?	+	–	[varies]		
50	frequency.horizontal	1070				?			[KHz*100]		
51	frequency.pixel	1069				?			[MHz*100]		
52	frequency.vertical	16403				?			[Hz]		
53	frequency.vertical.half	1291				?			[Hz]		
54	gain.all	1033				?	+	–	0 – 255		For ?, returns the average of red, green, and blue. For + and –, adjusts red, green and blue. Applies to analog sources only.
55	gain.blue	16394			=	?	+	–	0 – 255		Gain.whatever adjusts the White Level; Offset.whatever adjusts the Black Level. Applies to analog sources only.
56	gain.green	16392			=	?	+	–	0 – 255		Default value varies and is set at factory. Applies to analog sources only.

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
57	gain.red	16390			=	?	+	–	0 – 255		
58	gamma	1232			=	?			FILM VIDEO	0 2	
59	gray.balance	1031	RED GREEN BLUE ALL	0 1 2 3	=	?	+	–	0 – 15		
60	highbright	1071			=	?			OFF ON	0 1	Turns On-Screen Code LEDs on and off
61	horizontal.period	1264				?					
62	hue	16395			=	?	+	–	0 – 180		Used with composite, S-video and component video sources. This controls the color hue. Default value is 90.
63	image.cal.action	1339	NOMINAL RESTORE.FACTORY RESTORE.CLIPBOARD COPY.CLIPBOARD APPLY.BRIGHTNESS	1 3 5 6 9	[execute]						Use apply.brightness to restore the brightness uniformity after changing the adjustment in any way (using image.cal.corner, for example).
64	image.cal.corner	1338	X1 X2 X3 X4 Y1 Y2 Y3 Y4 CURRENTX CURRENTY	0 1 2 3 4 5 6 7 8 9					-192 – +192 -192 – +192 -192 – +192 -192 – +192 -108 – +108 -108 – +108 -108 – +108 -108 – +108 [set by image.cal.target] [set by image.cal.target]		1 = UL 2 = UR 3 = LL 4 = LR If brightness uniformity is enabled, any changes to these values must be followed with image.cal.action(apply.brightness).
65	image.cal.target	1340							UL UR LL LR	0 1 2 3	

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
66	index.delay	1218			=	?	+	–	0 – 1800		Index delay in degrees x 10 (750 = 75.0°)
67	interlaced	1065				?			OFF ON	0 1	
68	ir.remote	1095			=	?			DISABLE ENABLE	0 1	
69	justify	1053			=	?			LEFT [top] CENTER RIGHT [bottom] FILL	0 1 2 3	The values LEFT and RIGHT are used for top and bottom justification when the source aspect ratio is wider than the screen.
70	lamp	1063			=	?			OFF ON	0 1	
71	lamp.hours.high	1111			=	?			[hours / 10000]		Do not set lamp, runtime or system hours/minutes unless actual time was lost, such as when electronics module is replaced. Note: Product warranties are not based on these timers.
72	lamp.hours.low	1102			=	?			[hours mod 10000]		
73	lamp.hours.reset	1104			[execute]						
74	lamp.minutes	1103			=	?			0 – 59		
75	lamp.on.minutes	1312				?					Number of minutes lamp has been running since the last time it was off.
76	lamp.saver	1105			=	?			DISABLE ENABLE	0 1	This enables/disables DPMS delay.

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
77	lamp.saver.delay.discrete	1286			=	?			0MIN 5MIN 10MIN 15MIN 30MIN 45MIN 1HR 2HR 4HR 6HR 8HR 12HR 24HR	0 1 2 3 4 5 6 7 8 9 10 11 12	Sets Lamp Saver Timeout value.
78	lamp.saver.delay.hours	1145			=	?	+	–	0 – 23		This is DPMS delay
79	lamp.saver.delay.minutes	1144			=	?	+	–	0 – 59		This is DPMS delay with fine control.
80	lamp.saver.state	1146				?			DISABLED USER.OFF AUTO.OFF ON WAIT.ON	0 1 2 3 4	USER.OFF = the lamp is turned off because the user turned it off AUTO.OFF = lamp is off because lamp saver turned it off. ON = the lamp is on and Lamp Saver is on. WAIT.ON = the lamp is off, waiting for the cool-down timeout to end so it can come on.
81	native.frequency	1351			=	?			50HZ 60HZ	50 60	
82	offset.all	1032				?	+	–	0 – 127		For ?, returns the average of red, green, and blue. For + and –, adjusts red, green and blue. Applies to analog sources only.
83	offset.blue	16393			=	?	+	–	0 – 127		Offset.whatever adjusts Black Level. Gain.whatever adjusts the White Level.

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
84	offset.green	16391			= ? + –	0 – 127		Default value varies and is set at factory. Not used with digital sources.
85	offset.red	16389			= ? + –	0 – 127		
86	offset.reset	1177			[execute]			Sets offset.red, offset.green and offset.blue to mid levels.
87	opt.eng.horizontal.resolution	1125						
88	opt.eng.vertical.resolution	1126						
89	opt.engine.state	1271			?	OK COMM.FAULT FAULT	0 1 2	
90	osd.enable	1360			= ?	DISABLE ENABLE	0 1	Use if no OSD is desired. OSD will be re-enabled after AC power cycle.
91	overscan	1184			= ? + –	0 – 20 [% of image hidden at edges]		
92	part [ST]	2			?			Retrieves firmware part number

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
93	pattern	1028			=	?			NONE WHITE GRAY RED GREEN BLUE BLACK RED.SCALE GREEN.SCALE BLUE.SCALE GRAY.SCALE COLOR.BARS LOGO GRID CHECK4X4 COLORSCALE UNIFORMITY ALIGNMENT FOCUS CUSTOM X.ON.WHITE CYAN YELLOW MAGENTA	0 1 2 3 4 5 6 7 8 9 10 11 12 18 20 21 22 24 25 26 27 28 29 30	
94	phase	16400			=	?	+	–	[Range 0–31]		Value for = or ? commands is 0 – 31. In the menu, the value is shown in degrees. Each step (0 – 31) is 11.25 degrees.
95	plug.and.play	1152			=	?			DISABLE ENABLE	0 1	Enables/Disables DDC (EDID) response; factory default is enabled.
96	position.horizontal	16398			=	?	+	–	[varies]		
97	position.vertical	16399			=	?	+	–	[varies]		

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
98	preferred. source.detection	1288			= ?	5X4 4X3 15X9 16X9 2.35X1	12 13 16 17 23	
99	product [ST]	3			?			Retrieves text: display product name.
100	replies.sent	1139	RS232 AUX232	0 2	?	0 – 32767		Used only to indicate that replies have been sent. Resets to zero upon reaching its maximum value.
101	reset.balance	1034			[execute]			Resets color balance values to 100/8 (white 100; gray 8).
102	resolution.horizontal	16401			= ?	[varies]		
103	resolution.vertical	16402			= ?	[varies]		
104	revision [ST]	4			?			Retrieves text: firmware revision number.
105	runtime.hours.high	1113			= ?	[hours / 10000]		Do not set lamp, runtime or system hours/minutes unless actual time was lost, such as when electronics module is replaced. Note: Product warranties are not based on these timers.
106	runtime.hours.low	4100			= ?	[hours mod 10000]		
107	runtime.hours.reset	4613			[execute]			
108	runtime.minutes	4101			= ?	0 – 59		
109	saturation	16396			= ? + –	0 – 255		This controls color saturation. Default value is 128. Used with composite, S-video and component video sources.

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
110	select.source	17409			=	?			ANALOG DIGITAL [DVI] COMPONENT S.VIDEO COMPOSITE HDMI	0 1 2 3 4 5	
111	serial.diagnostics.clear	1188	RS232 AUX232	0 2	[execute]						
112	serial.port	1305				?			RS232 AUX232	0 2	
113	sharpness	16397			=	?	+	–	0-15		
114	slot.action	1082	SAVE RECALL DELETE NONE	0 1 2 3	[execute]						Performs the action (save, recall, delete) on the currently targeted slot.
115	slot.current	1150				?			0 – 39 [slot number - 1] 255 [none now used]		
116	slot.delete	1174	0 [slot 1] 1 [slot 2] : 39 [slot 40] 255 [current target]		[execute]						
117	slot.full	1114	0 [slot 1] 1 [slot 2] : 39 [slot 40]	0 1 : 39		?			0 [empty] 1 [full]		
118	slot.group	1353			=	?			DEFAULT NIGHT DAY CUSTOM1 CUSTOM2 TARGET	0 1 2 3 4 255	

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
119	slot.group.auto	1357			= ?	DISABLE ENABLE	0 1	
120	slot.group.delete	1356	DEFAULT NIGHT DAY CUSTOM1 CUSTOM2 TARGET	0 1 2 3 4 255	[execute]			
121	slot.group.recall	1355	DEFAULT NIGHT DAY CUSTOM1 CUSTOM2 TARGET	0 1 2 3 4 255	[execute]			
122	slot.group.save	1354	DEFAULT NIGHT DAY CUSTOM1 CUSTOM2 TARGET	0 1 2 3 4 255	[execute]			
123	slot.group.target	1358			= ?	DEFAULT NIGHT DAY CUSTOM1 CUSTOM2 TARGET	0 1 2 3 4 255	
124	slot.name. [ST]	5						Returns the name that will be used when saving the target slot.
125	slot.name.clear	1081			[execute]			Operates on the currently selected slot (see slot.target and slot.recall.target)

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
126	slot.name.letter	1080	0 [1st char] 1 [2nd char] : 23 [last char]	0 1 : 23	=	?			[one ascii character value]		The target is the nth letter of the 24-character string: 0 – 23. The value is the ascii character to send: numbers, letters, punctuation. Not all punctuation is available.
127	slot.name.letter.target	1079									
128	slot.recall	1173	0 [slot 1] 1 [slot 2] : 39 [slot 40] 255 [current target]		[execute]						
129	slot.recall.target	1077			=				0 [slot 1] 1 [slot 2] : 39 [slot 40]	0 1 : 39	
130	slot.save	1172	0 [slot 1] 1 [slot 2] : 39 [slot 40] 255 [current target]		[execute]						Slot.save, slot.recall and slot.delete are more direct ways of accomplishing what slot.action does.

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
131	slot.setting	1078	OFFSET.RED GAIN.RED OFFSET.GREEN GAIN.GREEN OFFSET.BLUE GAIN.BLUE BRIGHTNESS CONTRAST SHARPNESS HUE PHASE SATURATION SELECT.SOURCE FREQUENCY VERT.TOTAL POSITION.HORIZONTAL POSITION.VERTICAL RESOLUTION.HORIZONTAL RESOLUTION.VERTICAL ASPECT JUSTIFY OVERSCAN VIEWPORT.WINDOW.BOTTOM	16389 16390 16391 16392 16393 16394 16387 16388 16397 16395 16400 16396 17409 16404 16405 16398 16399 16401 16402 1054 1053 1184 1042	?						Returns the value of the setting for the target slot that was set with slot.target.
132	slot.setting (continued)	1078	VIEWPORT.WINDOW.LEFT VIEWPORT.WINDOW.RIGHT VIEWPORT.WINDOW.TOP WALL.HEIGHT ZOOM.WINDOW.BOTTOM ZOOM.WINDOW.LEFT ZOOM.WINDOW.RIGHT ZOOM.WINDOW.TOP	1039 1040 1041 1049 1047 1044 1045 1046								
133	slot.status	1083	0 [slot 1] 1 [slot 2] : 39 [slot 40]	0 1 : 39	?				EMPTY FILLED FILLED.AND.CURRENT NAME.EDITED	0 1 2 3	

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
134	slot.target	1068			=	?			0 [slot 1] 1 [slot 2] : 39 [slot 40]	0 1 : 39	Sets (or recalls) the target slot number for other actions. The target slot is used by slot.action, slot.name.clear, slot.name.letter, and slot.setting.)
135	source.search.status	1133				?			VIDEO.DISPLAYED GRAPHICS.DISPLAYED AUTO.RUNNING AUTO.SETUP.COMPLETE OUT.OF.RANGE SEARCHING DETECTED HOLDING IDLE	0 1 2 3 4 5 6 7 8	
136	sync.type	1064				?			UNKNOWN SOG COMPOSITE SEPARATE	0 1 2 3	SOG = sync on green SEPARATE = separate H and V sync
137	system.hours.high	1112			=	?			[hours / 10000]		Do not set lamp, runtime or system hours/minutes unless actual time was lost, such as when electronics module is replaced. Note: Product warranties are not based on these timers.
138	system.hours.low	4098			=	?			[hours mod 10000]		
139	system.hours.reset	4612			[execute]						
140	system.minutes	4099			=	?			0 – 59		

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
141	system.state	1059				?			WAIT READY ON FATAL.FAULT FAULT UNKNOWN	0 1 2 3 4 5	WAIT = waiting for lamp to cool READY = ready for ON command ON = at least on lamp is on FAULT = AC power must be cycled at the display to restart lamps
142	temperature.c	1153	BOARD DLP	0 5		?			0 – 125		Temperature, in Celsius. DLP = engine
143	uart.clear	1187	RS232 AUX232	0 2	[execute]						
144	uart.errors	1186	RS232 AUX232	0 2		?			0 – 32767		Resets to zero upon reaching its maximum value.
145	uart.overflows	1185	RS232 AUX232	0 2		?			0 – 32767		Resets to zero upon reaching its maximum value.
146	uniformity.correction	1352			=	?			DISABLE ENABLE	0 1	
147	vertical.lines	1263				?			0 – 65535		Raw number of lines detected by display.
148	video.standard	17426				?			NTSC NTSC.60.443 PAL.50.358 PAL SECAM N/A	1 3 4 6 8 22	If the format is completely unknown, or it is not a video source, the response in N/A.
149	viewport.window.bottom	1042			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
150	viewport.window.height	1100				?			[pixels]		

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
151	viewport.window.left	1039			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
152	viewport.window.right	1040			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
153	viewport.window.top	1041			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
154	viewport.window.width	1099				?			[pixels]		
155	white.balance	1285	RED GREEN BLUE ALL	0 1 2 3	=	?	+	–	0 – 100		
156	window.reset.size	1091			[execute]						Sets zoom and viewport window back to default values.
157	zoom.window.bottom	1047			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
158	zoom.window.height	1098				?			[pixels]		
159	zoom.window.left	1044			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	

Table 5-5. Operation and String Commands for VideoWall/CineWall (continued)

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
160	zoom.window.right	1045			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
161	zoom.window.top	1046			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
162	zoom.window.width	1097				?			[pixels]		

6. Reference

6.1 On-Screen Display (OSD) Menus

- Press the **MENU** button on the remote control to display the Main Menu. To select a menu item, use the ▲ and ▼ buttons on the remote control to highlight it. Press **ENTER** or ▶ to confirm your selection.
- Use the arrow buttons to select menu items or change settings.
- Press **PREV** to return to the previous menu. If you are in the Main Menu, pressing **PREV** turns off the OSD menu.
- Press **MENU** to turn off the OSD menu.

The VideoWall/CineWall OSD menus are arranged hierarchically, as shown in Figure 6-1. Depending on the selected input source and signal characteristics, some menu options may not be available.

Picture	Source	Analog, Digital, HDMI, Component, S-Video or Composite
	Video Standard (Composite or S-Video sources only)	NTSC or PAL (read-only)
	Sync Type (VGA sources only)	Separate H & V, Composite or Sync-on-Green
	Vertical Frequency	(read-only)
	Horizontal Frequency	
	Pixel Frequency	
	Horizontal Resolution	
	Vertical Resolution	
	Frequency	(Analog sources only)
	Phase	
	Sharpness	0 ... 15
	Input Levels (Analog RGB sources)	Auto White Level (Gain)
		White Level (Gain) (All / Red / Green Blue)
		Black Level (Offset) (All / Red / Green Blue)
	Input Levels (All other sources)	Brightness
		Contrast
		Saturation
		Hue
		Blue Only
Size & Position	Picture Position	Horizontal
		Vertical
	Zoom Window Top & Left	
	Zoom Window Bottom & Right	
	Viewport Window Top & Left	
	Viewport Window Bottom & Right	
	Reset All Windows to Default	
Aspect Ratio	Scale Mode	Fill Screen, Letterbox, 16x9, 4x3, VirtualWide, Cinema, Virtual Cinema or One to One
	Justify	Top/Left, Center or Bottom/Right
	Overscan	0% ... 20%
ISF Memories	Night	(must enter Installer menu passcode)
	Day	
	Custom 1	
	Custom 2	
	Save/Delete Night	
	Save/Delete Day	
	Save/Delete Custom 1	
	Save/Delete Custom 2	

Memory (passcode required)	Recall		
	Save	Change Name	
	Delete		
Diagnostics (passcode required)	Unit Status	(read-only)	
	Serial Port Status		
	Test Patterns	White, Black, Gray, Custom Color, Red, Green, Blue, Cyan, Yellow, Magenta, Red Scale, Green Scale, Blue Scale, Gray Scale, Colors, Color Bars, Logo, Grid, 4x4 Contrast, Uniformity, Focus	
	Setup Summary	(read-only)	
	Lamp Ballast	Voltage, Temperature, software version etc. (read-only)	
	Hours	System Time	(read-only)
		Running Time	
		Lamp	
		Reset Lamp Hours	
Advanced Options (passcode required)	Color Balance	Color Temperature	3200K, 5500K, 6500K, 8500K or Native
		White Balance (Gain)	Red/Green/Blue/All
		Gray Balance (Offset)	
		Test Pattern	(see above)
		Hide Menu	
		Copy to Clipboard	
		Recall From Clipboard	
		Reset to Defaults	
		Gamma	Film or Video
		White Boost	High or Off
	Miscellaneous Options	Beeper	
		Curtain Pattern	Black, Logo, White, Red, Green or Blue
		Auto Codes	
		EDID (Plug and Play)	
		Native Frequency	50 Hz or 60 Hz
		Preferred Source Detection	16:9, 4:3, 5:4 or 15:9
		Allow Frame Lock	
	Lamp Settings	Auto Lamp On	
		Lamp Saver	
		Lamp Saver Timeout	5 ... 45 min., 1 ... 24 hours
	Serial Port Settings	Group ID / Unit ID	0 ... 9, A ... Z
		ASCII Response Type	Symbolic, Numeric or Data Only
		ASCII Response Terminator	CR, CR+LF, LF or LF+CR
		Baud Rate	2400, 4800, 9600 or 19200
	Auto Setup Options	Retry on Lost Signal	
		Do Frequency	
		Do Phase	
		Do Position	
		Enable ISF Auto Slot Recall	
	Image Alignment	Test Pattern	(see above)
		Hide Menu	
		Adjust Corners	
		Copy to Clipboard	
		Recall From Clipboard	
		Set Corners to Factory Position	
		Set Corners to Nominal	
		Brightness Uniformity Correction	
	Menu Options	H Position	
		V Position	
		Menu Timeout	5 secs., 15 secs., 60 secs. or Never Time Out
Program Information	Native Resolution, Firmware version etc.	(read-only)	

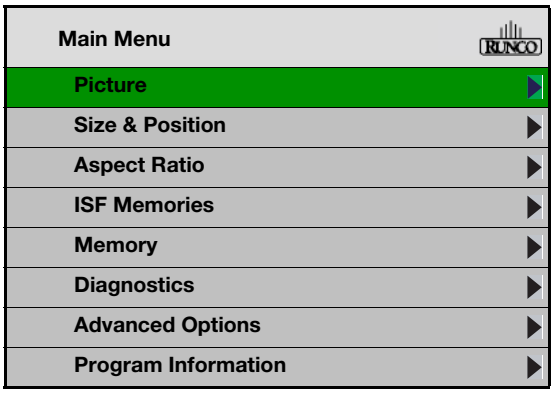
Figure 6-1. VideoWall/CineWall OSD Menu Structure

◄ Main Menu

The Main Menu is the starting point for accessing all VideoWall/CineWall functions.

Note

You must enter a passcode to access the Memory, Diagnostics and Advanced Options menus. Otherwise, they are hidden.To obtain this passcode, contact Runco Technical Support.



◄ Picture

Use the controls in the Picture menu to calibrate your VideoWall/CineWall for optimum picture quality. To access the Picture menu, press **MENU**, highlight Picture and press **ENTER**.

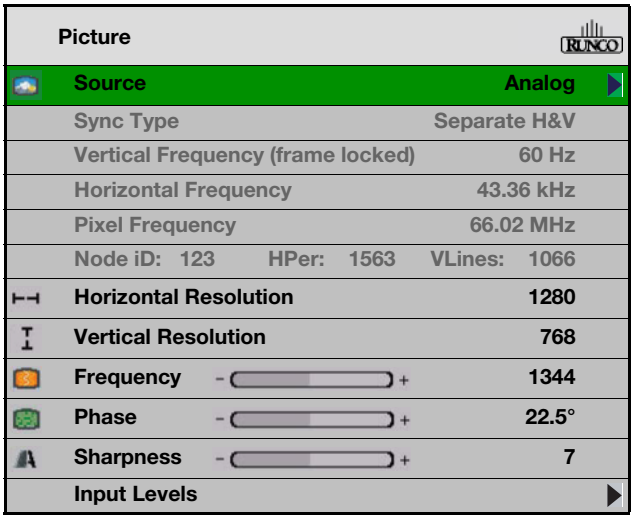
To adjust a setting, use the ▲ or ▼ button to highlight it and press **ENTER**. Use the ◀ or ▶ button to change the setting.

The Picture menu has different items depending on the current source type. You cannot adjust Frequency in Digital pictures, so that item is not in the Picture menu when the selected source is HDMI or Digital.

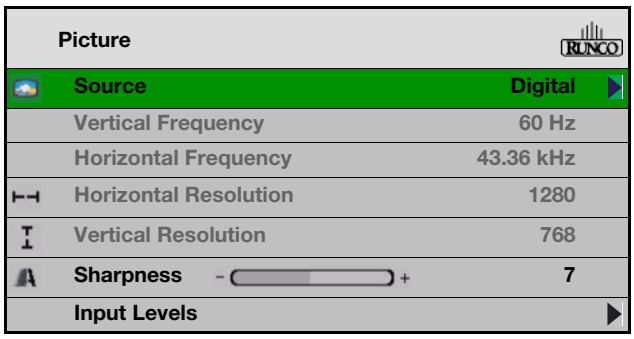
You cannot adjust Horizontal Frequency for VGA or Component sources, because that is determined by the source, so it is grayed out.

In the Source line, the left-right keys choose the source. Other items can be adjusted if they are not grayed out.

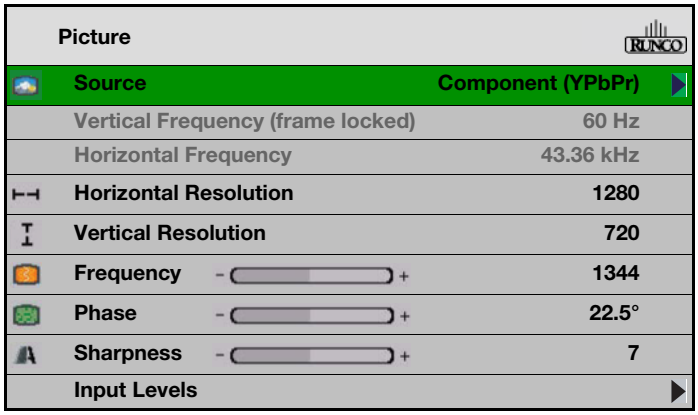
Picture Menu – Analog Sources



Picture Menu – Digital or HDMI Sources



Picture Menu – Component Sources



Source: To select a source, highlight Source, press ▶, select the source you want and press **ENTER**.

Sync Type: This line indicates whether the source outputs separate horizontal and vertical sync signals, a single, composite sync signal or a “sync-on-green” signal. In most cases, the Sync Type is **Separate H&V**.

Vertical Frequency/Horizontal Frequency/Pixel Frequency: These lines indicate the Vertical Frequency, Horizontal Frequency and Pixel Frequency of the incoming signal.

Horizontal Resolution/Vertical Resolution: These lines indicate the Horizontal Resolution and Vertical Resolution of the incoming signal.

Phase: This control adjusts the phase of the pixel sampling clock relative to the incoming signal. Adjust the phase when an RGB or Component image still shows shimmer or “noise.”

For best results, use a good test pattern such as a smooth gray consisting of a clear pattern of black and white pixels, or a similar “half on, half off” graphic image. Adjust the slidebar until the image stabilizes and each pixel is clearly defined. You may notice that you can stabilize the image at more than one point. Use either setting in such cases.

Sharpness: “Sharpness” is the amount of high-frequency detail in the image. To adjust sharpness, select Sharpness from the Picture menu and press **ENTER**. On your external test pattern source, select a pattern like the one shown in Figure 6-2. Adjust as needed, looking for white edges around the transitions from black to gray and differently-sized lines in the “sweep” patterns at the top and bottom. Lower the sharpness setting to eliminate them.

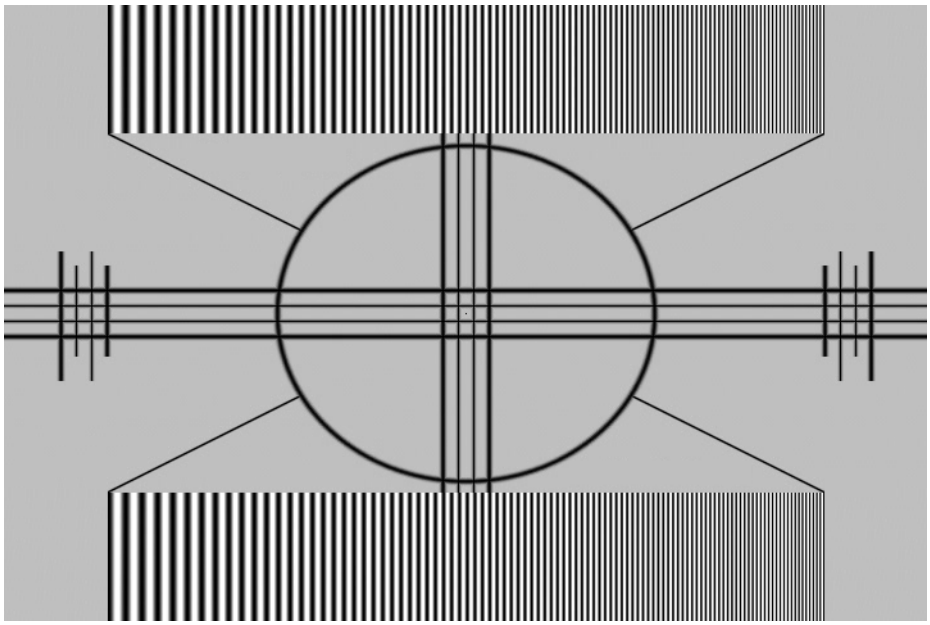
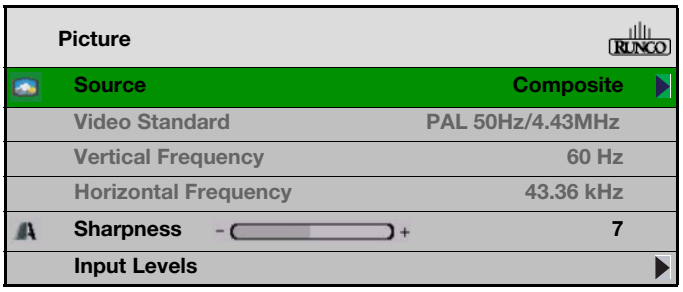


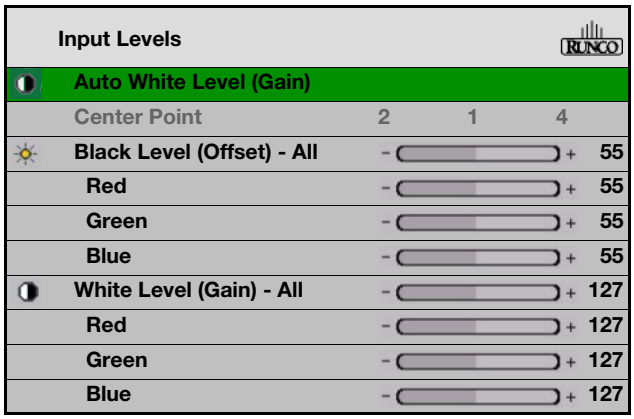
Figure 6-2. Typical Test Pattern for Adjusting Sharpness

Picture Menu – Composite or S-Video Sources

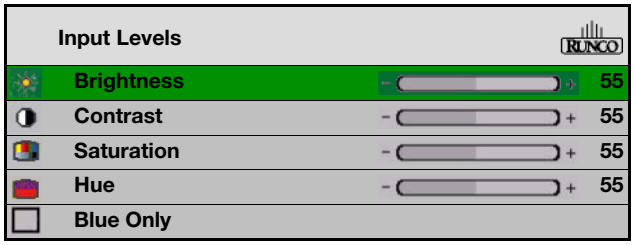


Video Standard: For Composite and S-Video sources, this line indicates the video standard of the incoming signal (NTSC or PAL, 50 or 60 Hz).

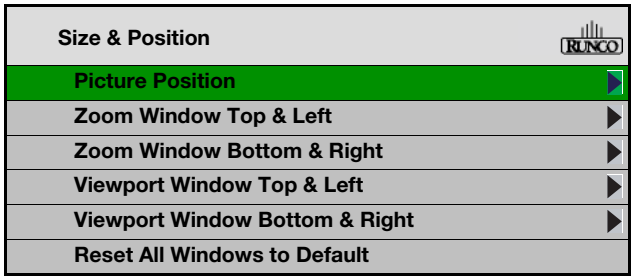
Input Levels (Analog Sources): Refer to ***Input Levels – Analog RGB Sources*** on page 37.


Input Levels
Auto White Level (Gain)
Center Point 2 1 4
Black Level (Offset) - All - + 55
Red - + 55
Green - + 55
Blue - + 55
White Level (Gain) - All - + 127
Red - + 127
Green - + 127
Blue - + 127

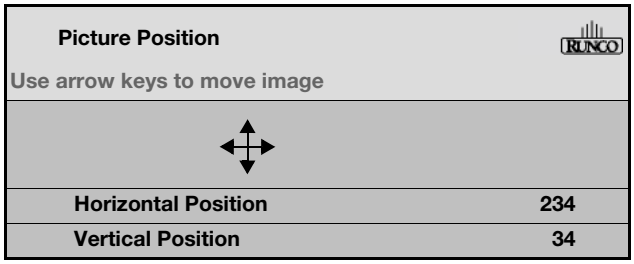
Input Levels (HDMI, Digital, Component, Composite or S-Video Sources): Refer to ***Input Levels – HDMI, Digital, Component, Composite or S-Video Sources*** on page 40.



Size & Position ➤ To fine-tune the displayed image size and position for each input, select Size & Position from the Main Menu.


Size & Position
Picture Position
Zoom Window Top & Left
Zoom Window Bottom & Right
Viewport Window Top & Left
Viewport Window Bottom & Right
Reset All Windows to Default

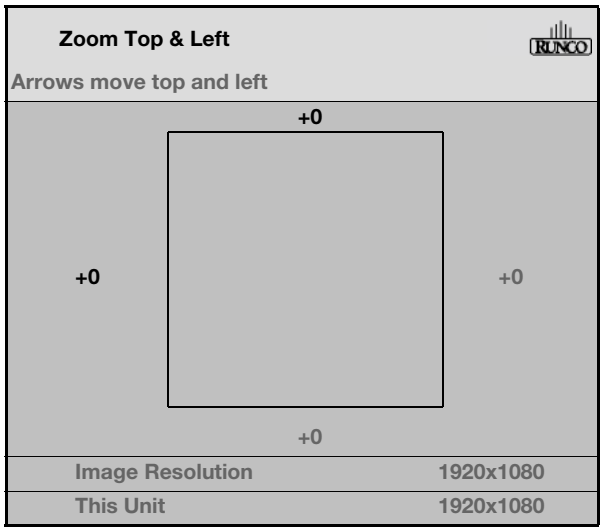
Picture Position: Refer to ***Adjusting Image Position*** on page 43.



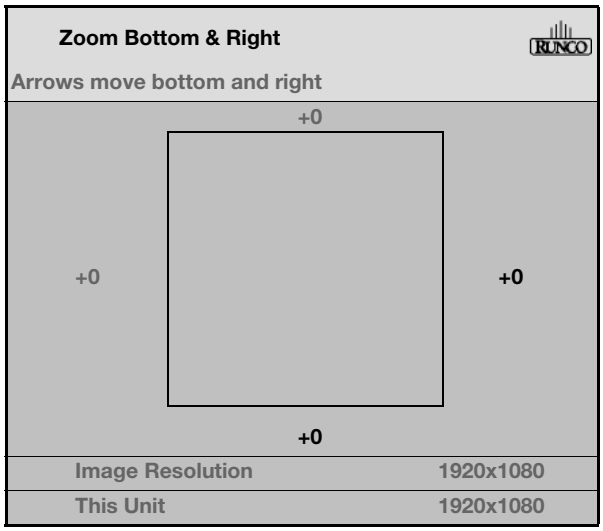
Zoom Window Top & Left/Zoom Window Bottom & Right: Zoom enlarges or reduces the picture. It is primarily used to eliminate black edges at the sides of the picture that cannot be removed using the Picture Position controls.

To adjust the zoom:

1. Press **MENU**.
2. Select Size & Position from the Main Menu.
3. Select Zoom Window Top & Left from the Size & Position Menu.
4. Use the ▲ or ▼ button to move the top edge of the picture. Use the ◀ or ▶ button to move the left edge of the picture.



5. Press **PREV** to return to the Size & Position Menu.
6. Select Zoom Window Bottom & Right from the Size & Position Menu.
7. Use the ▲ or ▼ button to move the bottom edge of the picture. Use the ◀ or ▶ button to move the right edge of the picture.



Zoom menu entries:

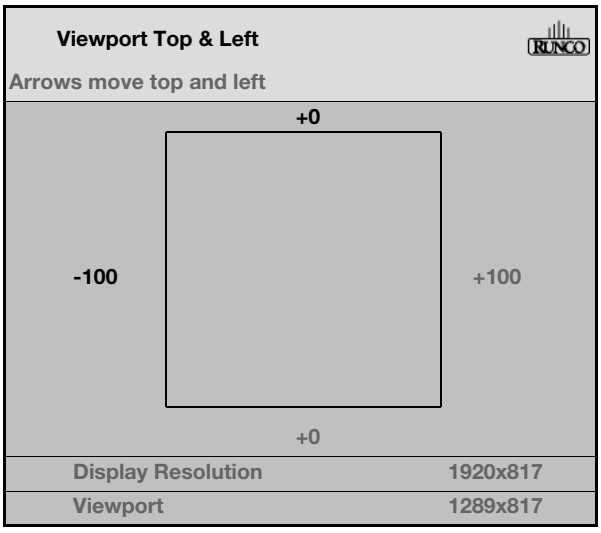
- Image Resolution is the resolution of the source picture.
- This Unit is the number of pixels this unit is using of all the incoming pixels.

Viewport Window Top & Left/Viewport Window Bottom & Right: The controls in the Viewport menus adjust the number of pixels actually used on the DMD™. Use them to mask the edges of the display area (to eliminate “snow” or edge noise, for example). You cannot increase these values beyond 1920 pixels horizontal or 1080 pixels vertical (817 pixels vertical on the CineWall CW-95HD), but you can decrease them.

What is the DMD? DMD stands for Digital Micromirror Device. It is a Texas Instruments trademark for their patented chip that produces the pictures in a Digital Light Processing (DLP™) system. The DMD chip is about the size of a postage stamp and contains, in the case of the VW-100HD, 1920 by 1080 pixels.

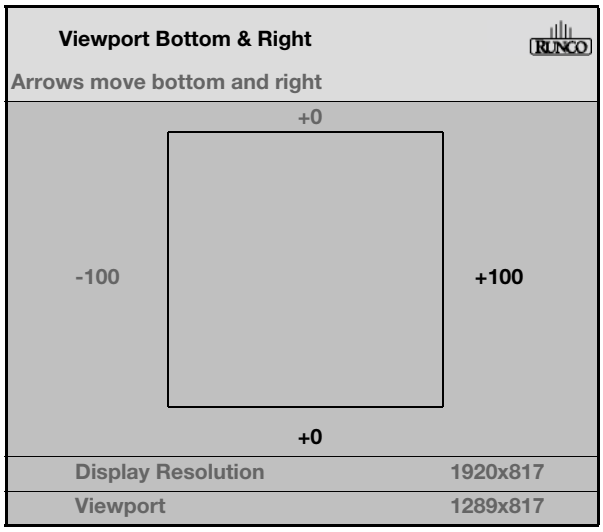
To adjust the Viewport:

1. Press **MENU**.
2. Select Size & Position from the Main Menu.
3. Select Viewport Window Top & Left from the Size & Position Menu.
4. Use the ▲ or ▼ button to change the number of masked (unused) pixels at the top edge of the picture. Use the ◀ or ▶ button to do the same at the left edge of the picture.



5. Press **PREV** to return to the Size & Position Menu.
6. Select Viewport Window Bottom & Right from the Size & Position Menu.

7. Use the ▲ or ▼ button to change the number of masked (unused) pixels at the bottom edge of the picture. Use the ◀ or ▶ button to do the same at the right edge of the picture.

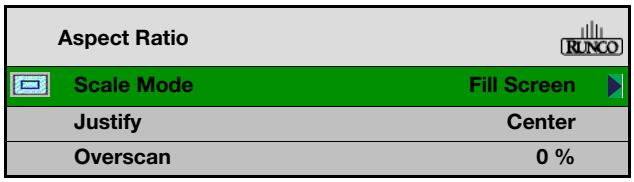


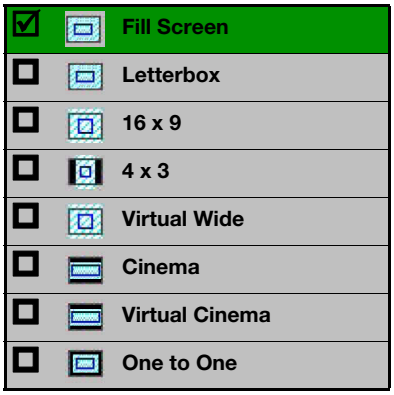
Viewport menu entries:

- Display Resolution shows the resolution of the DMD chip. This has nothing to do with the resolution of the source picture.
- Viewport shows the number of DMD pixels being used.

Reset All Windows to Default: Select Reset All Windows to Default to set all four Zoom values to zero.

Aspect Ratio ➤ Select Aspect Ratio from the Main Menu to adjust the size, position and scaling method, as needed.

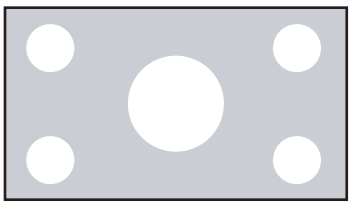
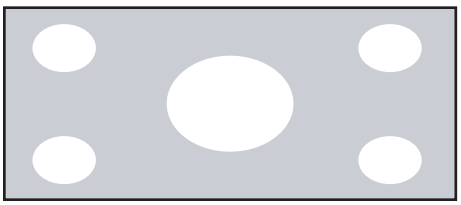
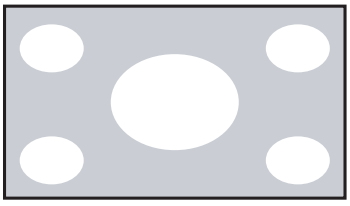
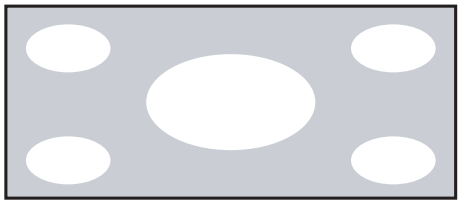




Scale Mode: To change the aspect ratio (size and shape) of the projected image, press ▲ or ▼ to highlight Scale Mode and press **ENTER** or ▶. Use the ▲ or ▼ button to select the appropriate aspect ratio for the selected screen option and type of program material being viewed; refer to Table 6-1.

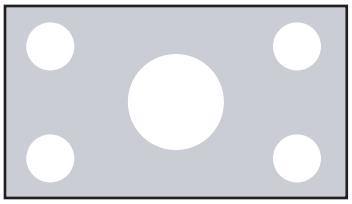
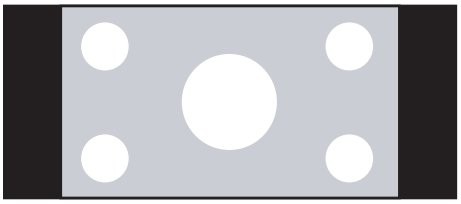
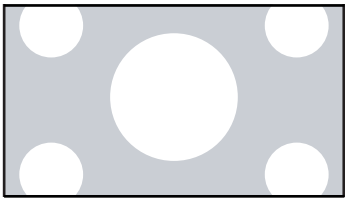
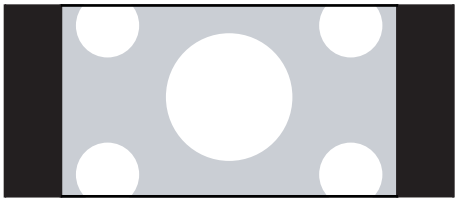
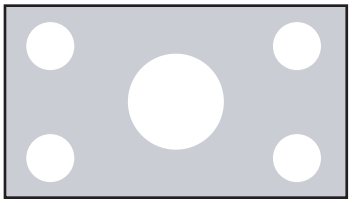
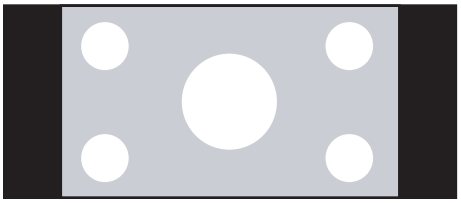
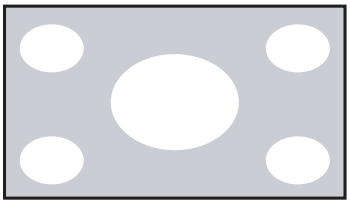
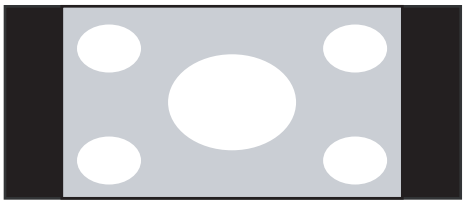
Note that some scale modes are unavailable and/or not useful with certain types of source material.

Table 6-1. Scale Mode Settings

Aspect Ratio/ Scale Mode Setting	Description	Aspect Ratio of Source Signal	Geometry of Projected Image (Note)	
			VW-100HD (16:9 Screen)	CW-95HD (2.35:1 Screen)
Fill Screen	Fill Screen stretches the picture as necessary on one axis to fill the screen. All of the picture is shown.	16:9		
		4:3		

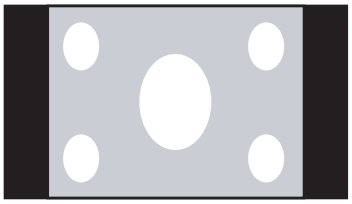
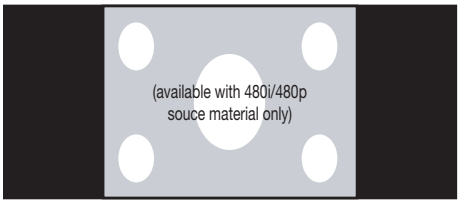
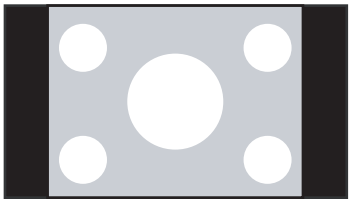
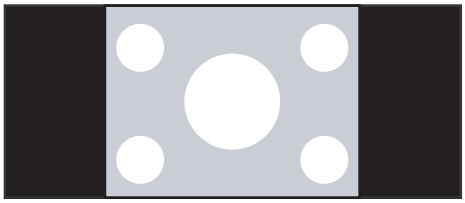
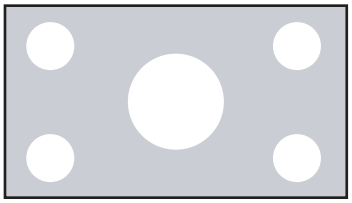
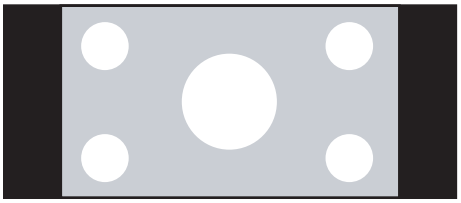
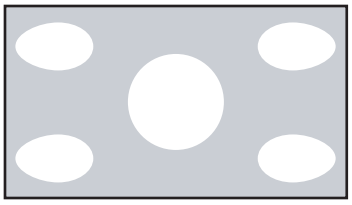
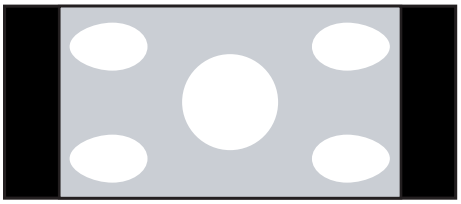
Note: *These illustrations show the image position when Justify is set to Center.*

Table 6-1. Scale Mode Settings (continued)

Aspect Ratio/ Scale Mode Setting	Description	Aspect Ratio of Source Signal	Geometry of Projected Image (Note)	
			VW-100HD (16:9 Screen)	CW-95HD (2.35:1 Screen)
Letterbox	Letterbox mode scales (zooms in on) a 4:3 image linearly (by the same amount on all sides) to fill a 16:9 display, cropping the top and bottom of the image. (This setting has no effect on 16:9 source material.)	16:9		
		4:3		
16:9	16:9 linearly scales the source active image horizontally and vertically to fill a 16:9 screen.	16:9		
		4:3		

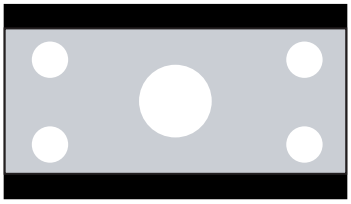
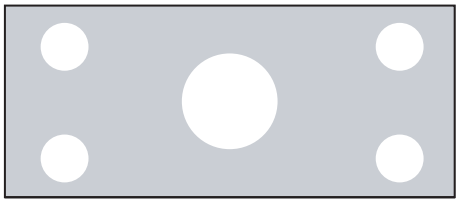
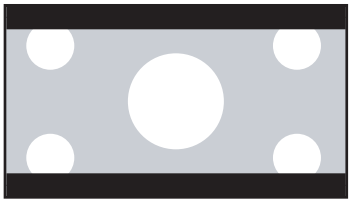
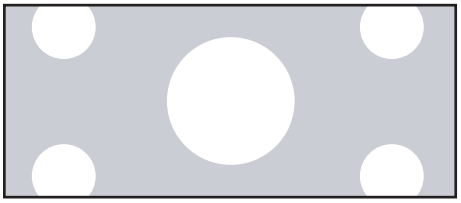
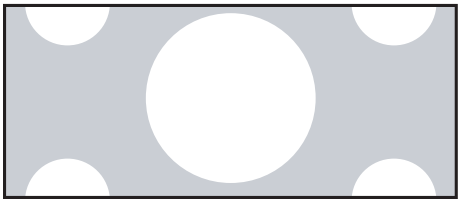
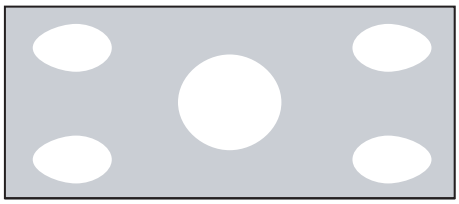
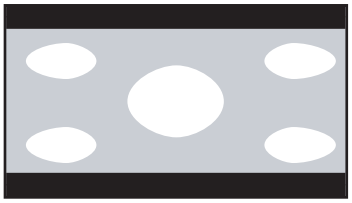
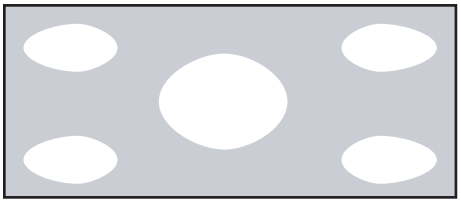
Note: *These illustrations show the image position when Justify is set to Center.*

Table 6-1. Scale Mode Settings (continued)

Aspect Ratio/ Scale Mode Setting	Description	Aspect Ratio of Source Signal	Geometry of Projected Image (Note)	
			VW-100HD (16:9 Screen)	CW-95HD (2.35:1 Screen)
4:3	4:3 linearly scales the source active image horizontally and vertically to fill a 4:3 screen.	16:9		
		4:3		
Virtual-Wide	VirtualWide scales a 4:3 image NON-linearly (more on the sides than in the center) to fit a 16:9 screen. (This setting has no effect on 16:9 source material.)	16:9		
		4:3		

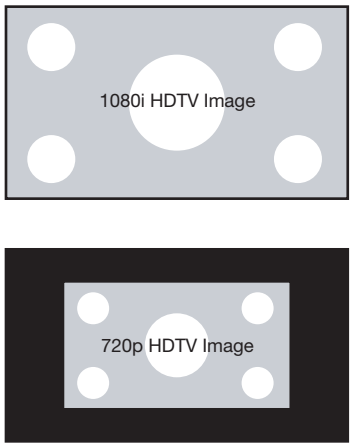
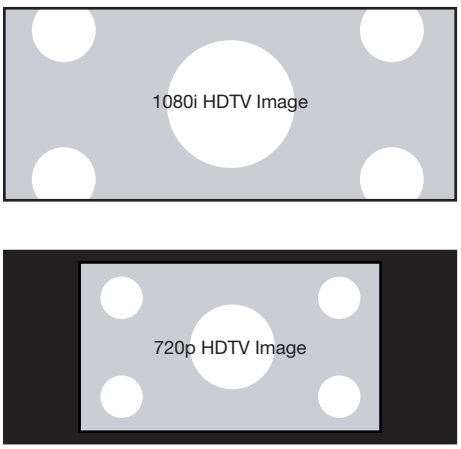
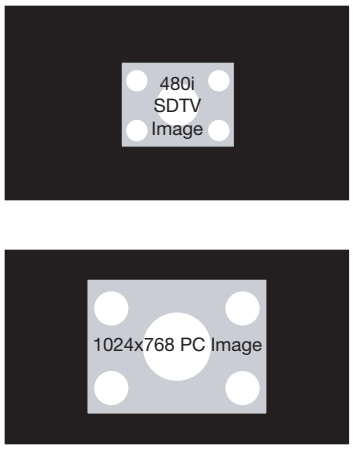
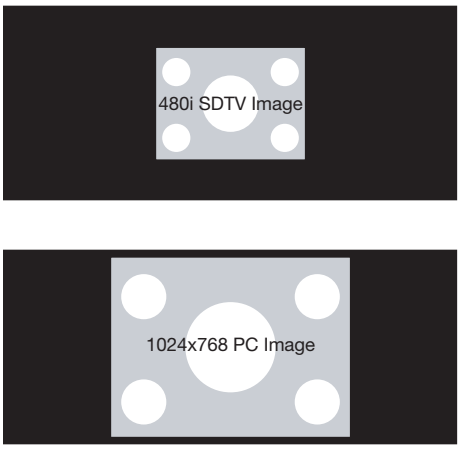
Note: *These illustrations show the image position when Justify is set to Center.*

Table 6-1. Scale Mode Settings (continued)

Aspect Ratio/ Scale Mode Setting	Description	Aspect Ratio of Source Signal	Geometry of Projected Image (Note)	
			VW-100HD (16:9 Screen)	**CW-95HD (2.35:1 Screen)**
Cinema	Select Cinema to view 2.35:1 source material in its native aspect ratio. Cinema masks the upper and lower portions of the screen to create a viewable area with a 2.35:1 aspect ratio. The geometry of the active image area is unchanged.	2.35:1		
		16:9		
		4:3		
Virtual Cinema	Virtual Cinema scales a 16:9 image NON-linearly (more on the sides than in the center) to fit a 2.35:1 screen.	16:9		
		4:3		

Note: *These illustrations show the image position when Justify is set to Center.*

Table 6-1. Scale Mode Settings (continued)

Aspect Ratio/ Scale Mode Setting	Description	Aspect Ratio of Source Signal	Geometry of Projected Image (Note)	
			VW-100HD (16:9 Screen)	CW-95HD (2.35:1 Screen)
One To One	Select One to One to display the source signal in its native resolution, with no re-sizing or overscan. This means, for example, that 720p HDTV programs will display with unused pixels on all sides: 320 on the left and right sides and either 180 (VW-100HD) or 48 (CW-95HD) above and below.	16:9		
		4:3		

Note: *These illustrations show the image position when Justify is set to Center.*

Justify: Justify moves the picture to the top-left corner, center or bottom-right corner of the screen.

Note

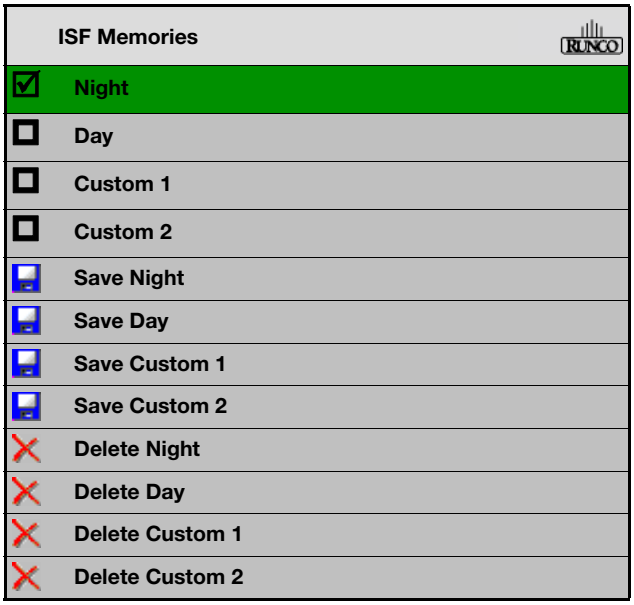
Certain combinations of resolution and Scale Mode (for example, 1920x1080 and One to One, or any resolution with Fill Screen) do not allow the Justify setting to be changed.

Overscan: Some SDTV/EDTV programs are produced based on the assumption that older television sets may not display the outer edges of the broadcast picture area. Overscan effectively hides these inactive, outer edges of the image.

Select up to 20% of overscan, as needed. (For HDTV, DVDs and other sources, overscan is generally not necessary or desirable.)

◄ *ISF Memories*

Select ISF Memories from the Main Menu to recall, save or delete the contents of the ISF memory slots. For more information about using the ISF memory slots, refer to ***Using ISF Memories*** on page 44.



Night/Day/Custom 1/Custom 2: To manually recall an ISF memory slot, press ▲ or ▼ to highlight Night, Day, Custom 1 or Custom 2. Then, press **ENTER**.

Save Night/Day/Custom 1/Custom 2: To save the current settings to an ISF memory slot, press ▲ or ▼ to highlight Save Night, Save Day, Save Custom 1 or Save Custom 2. Then, press **ENTER**.

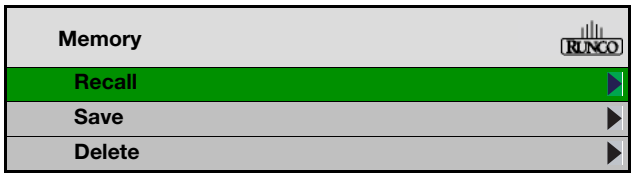
Note *You must enter a passcode to access the Save Night or Save Day menu items. Otherwise, they are hidden.*

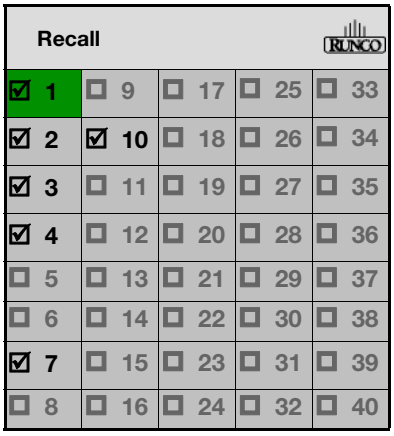
Delete Night/Day/Custom 1/Custom 2: To delete the current contents of an ISF memory slot, press ▲ or ▼ to highlight Delete Night, Delete Day, Delete Custom 1 or Delete Custom 2. Then, press **ENTER**.

Note *You must enter a passcode to access the Delete Night or Delete Day menu items. Otherwise, they are hidden.*

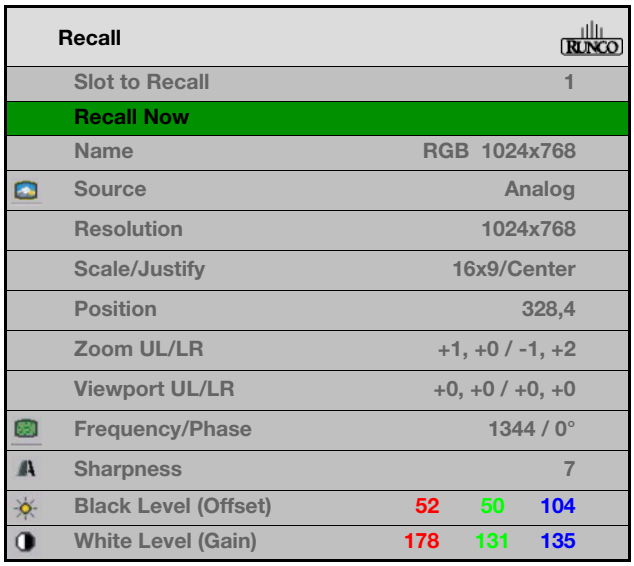
Memory ➤ The VideoWall/CineWall provides 40 memory locations or ***slots*** for storing settings. To manage these stored settings, select Memory from the Main Menu.

Note *You must enter a passcode to access the Memory menu. Otherwise, it is hidden. To obtain this passcode, contact Runco Technical Support.*





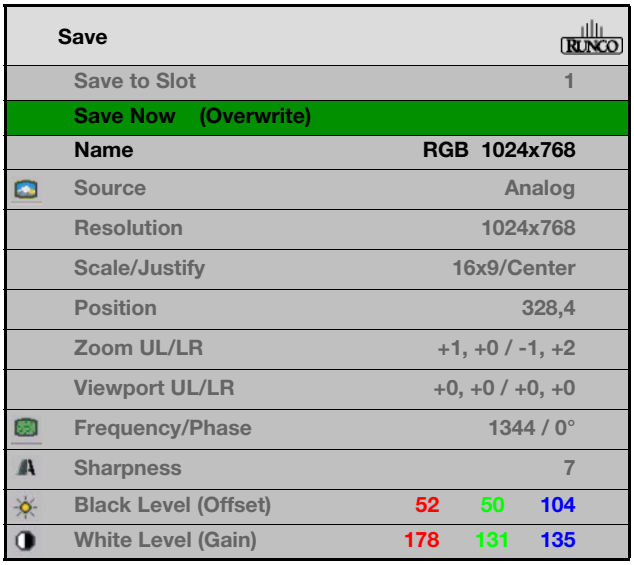
Recall: In the Recall grid menu, use the arrow keys to navigate through the memories that have something stored in them. The empty memory slots are grayed out and you can't select them. Press **ENTER** to open the Recall detail menu.



The detail menu shows what is recalled when you press **ENTER**.

When (Current) appears in the Slot to Recall line, it means that the VideoWall/CineWall is already doing exactly what this slot would tell it to do.

Save: In the Save grid, use the arrow keys to cycle through the available memories. As you navigate through all 40 memories, Save Now will show (Overwrite), as shown here, if the slot already has something in it.



For each empty memory, the Name of the memory is the default name for this slot. You can change this name as described below. Most items are grayed out because you can't change anything here except the memory slot name.

(Overwrite) appears if the Save to Slot number currently has something saved in it.

To save, highlight Save Now and press **ENTER**.

A (Current) notice will appear in Save to Slot to indicate that the save was successful and that the slot now contains the settings that the VideoWall/CineWall is currently using.

To change the Name of a memory slot, highlight Name and press **ENTER**. A bar appears below the name indicating the character position. Press ◀ or ▶ to move the yellow highlight in this bar. Press ▲ or ▼ to change the character at that position. Memory slot names can be up to 24 characters long.

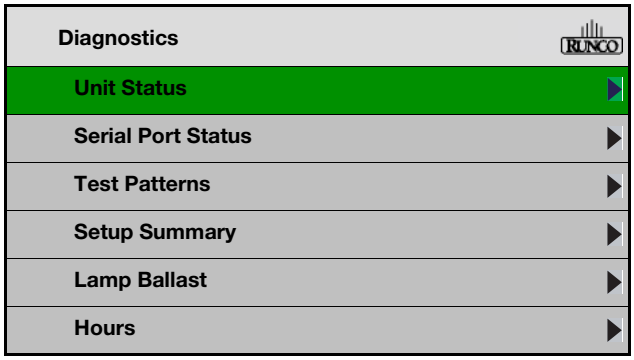
The default memory slot name is an abbreviation of the memory contents (input and resolution); for example, `HDM  1920x1080`.

Delete: The Delete menu looks like the Recall menu. You do not need to delete a memory slot before saving something new.

Diagnostics ➤ To see current VideoWall/CineWall status information, select Diagnostics from the Main Menu. Should you ever need to contact Runco Technical Support, this information will help them answer your questions and/or resolve product performance issues.

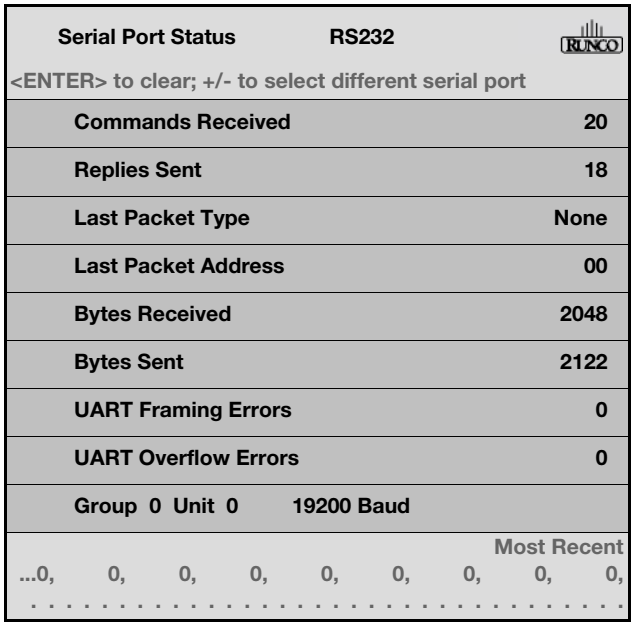
Note

You must enter a passcode to access the Diagnostics menu. Otherwise, it is hidden.To obtain this passcode, contact Runco Technical Support.



Unit Status: Select Unit Status from the Diagnostics menu to see information about the current operational state of various VideoWall/CineWall components such as the fans, lamp and electronics module.

Serial Port Status: Select Serial Port Status from the Diagnostics menu to see statistics relating to recent activity on the VideoWall/CineWall serial port.


Serial Port Status RS232
<ENTER> to clear; +/- to select different serial port
Commands Received 20
Replies Sent 18
Last Packet Type None
Last Packet Address 00
Bytes Received 2048
Bytes Sent 2122
UART Framing Errors 0
UART Overflow Errors 0
Group 0 Unit 0 19200 Baud
Most Recent
...0, 0, 0, 0, 0, 0, 0, 0, 0,

Press **ENTER** on the remote control to reset these counters to zero.

Test Patterns: The VideoWall/CineWall has numerous internal test patterns that are useful to technicians for advanced calibration, measurement and fault isolation purposes. To access them, select Test Patterns from the Diagnostics menu.

Test Patterns

<ENTER> to select, None to show picture

None	Red	Red Scale	Logo
White	Green	Green Scale	Grid
Black	Blue	Blue Scale	4x4 Contrast
Gray	Cyan	Gray Scale	Uniformity
Custom Color	Yellow	Colors	Focus
	Magenta	Color Bars	

To select a test pattern, use the ▲, ▼, ◀ or ▶ buttons on the remote control unit to highlight its name. Then, press **ENTER**.

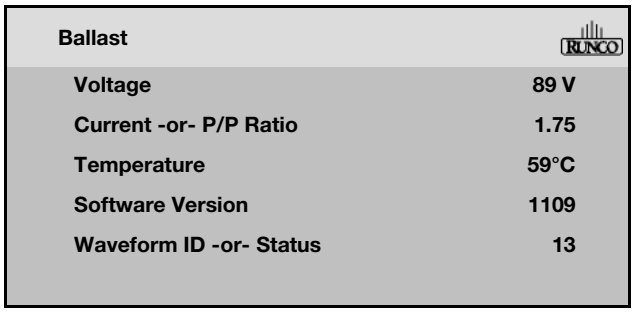
To exit test pattern mode, select None and press **ENTER**.

Setup Summary: To see which input is currently active and a summary of settings currently in effect for that input, select Setup Summary from the Diagnostics menu.

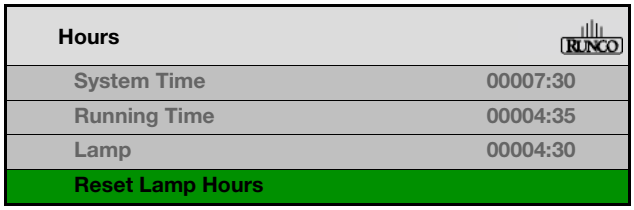
Setup Summary

Current Setup Information			
Source	HDMI		
Resolution	1920x1080		
Scale/Justify	16x9 / Center		
Position/Overscan	100,100	0%	
Zoom UL/LR	+1, +0 / -1, +2		
Viewport UL/LR	+0, +0 / +0, +0		
Sharpness	7		
Black Level (Offset)	52	50	104
White Level (Gain)	178	131	135
	Group 0	Unit 0	
White Balance (Gain)	100	100	100
Gray Balance (Offset)	7	7	7

Lamp Ballast: To see current lamp ballast status information, select Lamp Ballast from the Diagnostics menu.



Hours: To see current system and lamp uptime information, or to reset the current lamp hour counter, select Hours from the Diagnostics menu.



- System Time is the number of hours the electronics module has received power.
- Running Time is the total number of hours any lamp has been on.
- Lamp is the total number of hours *this* lamp has been on (that is, if someone reset lamp hours when they changed the lamp).

When you replace the projector lamp (refer to ***Lamp Replacement*** on page 51), you should also reset the lamp hour counter. To do this, highlight Reset Lamp Hours in the Hours menu and press **ENTER**.

Note

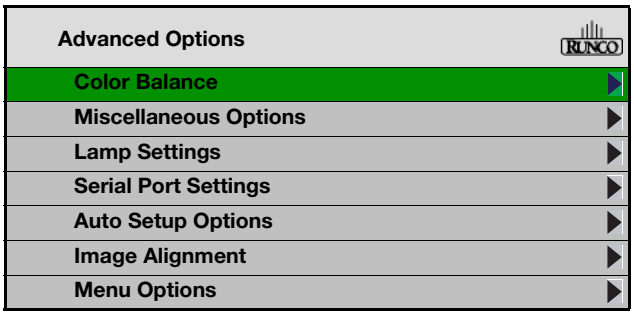
1. *Reset Lamp Hours does not affect the System Time or Running Time counters.*
2. *Reset the Lamp Hours ONLY after you replace the lamp. Otherwise, the reported Lamp usage will be inaccurate.*

◄ *Advanced Options*

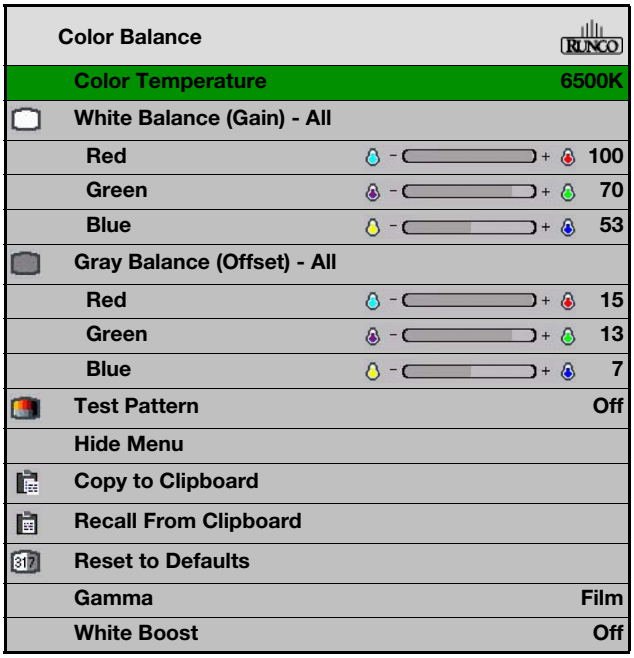
To adjust the lamp, configure the serial communications port and perform numerous other advanced, installation-related tasks, select Advanced Options from the Main Menu.

Note

You must enter a passcode to access the Advanced Options menu. Otherwise, it is hidden. To obtain this passcode, contact Runco Technical Support.



Color Balance: Refer to ***Color Balancing the VideoWall/CineWall*** on page 34.



- **Color Temperature:** To choose a color temperature setting, highlight Color Temperature from the Color Balance menu. (Color temperature defines the “color of gray.”) The choices are 3200K, 5500K, 6500K, 8500K and Native.

  The fixed temperatures have preset values for all the White and Gray settings. Native is not fixed but equates to a color temperature of approximately 9,000K. The 6500K setting is appropriate for most situations. Higher settings produce a “bluer” picture; lower ones impart a reddish hue to the image.

- **Test Pattern:** Refer to ***Test Patterns*** on page 109.
- **Gamma:** Gamma changes the colors slightly for Film or Video display. Use Film for deeper reds. Use Video for optimal brightness.
- **White Boost:** White Boost can increase the brightness of the brightest parts of the picture. Set it to Off or High. Using this control may alter slightly some of the brighter colors.

Tip

Set White Boost to Off before making White Balance or Gray Balance adjustments.

Miscellaneous Options: Select Miscellaneous Options from the Advanced Options menu to enable or disable the following settings:

- **Beeper:** Beeper makes the VideoWall/CineWall make a chirping sound each time a remote control button is pressed (and received by the VideoWall/CineWall). The display always beeps three times when you press a button that tells the VideoWall/CineWall to do something it can't do, such as turn on the lamps when they are already on.
- **Curtain Pattern:** Curtain Pattern chooses what appears on the screen when the VideoWall/CineWall receives the serial command `op ** curtain` (refer to page 75). The choices are Black, Logo, White, Red, Green or Blue.
- **Auto Codes:** Auto Codes causes the VideoWall/CineWall to start flashing the On Screen Codes whenever an event causes the lamps to go out, such as a fan failure.
- **EDID (Plug and Play):** Plug and Play enables the Extended Display Identification Data (EDID) that is used by many computers to determine the capabilities of the monitor. This is a complicated standard, and not all video card drivers and operating systems act the same. If you are having trouble getting your video card to output a picture when connected to the VideoWall/CineWall, try disabling Plug and Play and rebooting the computer, to see if it acts any better. Normally, Plug and Play should be enabled.
- **Preferred Source Detection:** Preferred Source Detection tells the VideoWall/CineWall which aspect ratio to use when the incoming signal may have several choices. For instance, 1024x768 and 1366x768 have similar signal timings, and the VideoWall/CineWall might choose the wrong one. If you application sometimes has 1024x768 but never 1366x768, set this control for 4x3.
- **Native Frequency/Allow Frame Lock:** Select Native Frequency from the Miscellaneous Options menu to choose the DLP frame rate when the VideoWall/CineWall is not frame-locked to a source.

  It takes a few seconds for the VideoWall/CineWall to change between frequencies, so if you are using it with 50-Hz sources primarily or exclusively, set the Native Frequency to 50 Hz. Likewise, set it to 60 Hz if most or all of your sources are 60 Hz. Doing so can reduce the time it takes to switch inputs.

  When Allow Frame Lock is enabled, the VideoWall/CineWall DLP frame rate is exactly matched to the frame rate of the incoming source. This helps ensure smooth panning of the input signal with no dropped or repeated frames.

  Only sources between 48 Hz and 60 Hz are frame-locked. If a source is not frame-locked, the DLP frame rate will be the selected "Native Frequency" (50 Hz or 60 Hz).

Lamp Settings: Select Lamp Settings from the Advanced Options menu to enable or disable the following settings:

- **Auto Lamp On:** Auto Lamp On makes the lamp turn on soon after AC power is applied. The VideoWall/CineWall must always go through its initialization and sometimes wait for the lamp to cool.
- **Lamp Saver/Lamp Saver Timeout:** Lamp Saver causes the lamp to turn off if there is no source for the specified Lamp Saver Timeout period. When a valid source is re-acquired, the lamp turns on again. When the lamp turns off, it must cool down. If the source is acquired during this cool-down period, the lamp will turn on after the cool-down period.

  The Lamp Saver Timeout value ranges from 5 minutes to 24 hours.

Serial Port Settings: Select Serial Port Settings from the Advanced Options menu to view or change the following serial communication parameters.

For more information on serial communications, refer to ***Serial Communications*** on page 57.

- **Group ID / Unit ID:** Group ID and Unit ID combine to make the two-character ID for the display. The range of each is 0-9 and A-Z.

ASCII Response Type and ASCII Response Terminator control the format of the responses to RS-232 commands the VideoWall/CineWall receives, as follows:

- **ASCII Response Type:** ASCII Response Type determines how you want the replies to look when they come back to you. Choose one of the following:
  - **Symbolic** means the replies will come back as ASCII characters, if the value column allows them.
  - **Numeric** means that the Value Number will come back. Both of these will be preceded by the full string you sent.
  - **Data Only** means that only the value is returned, not the preceding information.

  For example, if you send `op 00 curtain.pattern ? [CR]`

  and the current Curtain Pattern setting is “Green,” the VideoWall/CineWall responds as follows:

  `OP 00 CURTAIN.PATTERN=GREEN` (ASCII Response Type = Symbolic)

  `OP 00 1036=4` (ASCII Response Type = Numeric)

  `4` (ASCII Response Type = Data Only)

Note

Replies are always in ALL CAPS, regardless of how the query was sent.

- **ASCII Response Terminator:** ASCII Response Terminator determines the End Of Line character the display sends at the end of every command. The correct setting for your installation depends on what program you use to send commands and receive replies.

◄ *Program Information*

Select Program Information from the Main Menu to see information that uniquely identifies your display: the native resolution, the installed firmware version and the firmware version build date. Should you ever need to contact Runco Technical Support, this information will help them answer your questions or resolve product performance issues.

Program Information

Runco International

1195 NW Compton Drive
Beaverton, OR 97006-1992, USA
+1.800.237.8626
www.runco.com

CineWall 100	**1920 x 1080**
010-0989	**Rev 1.0**
Code Generated Date:	**Aug 10 2008 at 12:18:57**
GUI Generated Date:	**August 10, 2008 at 12:18:27**

6.2 VideoWall/CineWall Specifications

Table 6-2 lists the VideoWall/CineWall specifications.

Table 6-2. VideoWall/CineWall Specifications

Native Resolution:	**Model VW-100HD:** 1920 x 1080 (16:9) **Model CW-95HD:** 1920 x 817 (2.35:1)
Aspect Ratios:	4:3, Letterbox, 16:9, Fill Screen, VirtualWide, Cinema, Virtual Cinema, One to One
Video Standards:	NTSC, PAL, ATSC
Video Compatibility:	480i, 480p, 576i, 576p, 720p, 1080i, 1080p
Picture Size (16:9 Screen):	**Model VW-100HD:** 100 inches (2540 mm), diagonal **Model CW-95HD:** 95 inches (2413 mm), diagonal
Lamp:	156/180W P-VIP UHP type, with 3AC Lamp Driver
Estimated Lamp Life:	6000 hours, median
Video Inputs:	(1) Composite Video, (1) S-Video, (1) Component Video (3 x RCA), (1) HDMI, (1) DVI with HDCP, (1) VGA (15-pin D-sub)
Control Options:	- Discrete IR remote - Serial commands via RS-232
RS-232 Communication Parameters:	2400, 4800, 9600 or 19200 bps, no parity, 8 data bits, 1 stop bit, no flow control
Power Requirements:	100 to 240 VAC (auto-sensing), 47 to 63 Hz 290 Watts (989.8 BTUs/hour)
Operating Environment:	41°F to 95°F (5°C to 35°C), 20% to 80% humidity (non-condensing)
Dimensions:	**Model VW-100HD:** See Figure 6-3 **Model CW-95HD:** See Figure 6-4
Weight (approximate):	**Chassis and Mounting Hardware:** 165 lbs. (74.84 kg) **Screen:** 95 lbs. (43.09 kg) **Shipping Container/Packaging:** 255 lbs. (115.67 kg)
Regulatory Approvals:	Complies with FCC Class B, CE, C-Tick, cTUV-US

Specifications are subject to change without notice.

6.3 Dimensions

Figure 6-3 shows the VideoWall VW-100HD dimensions (all dimensions are in inches).

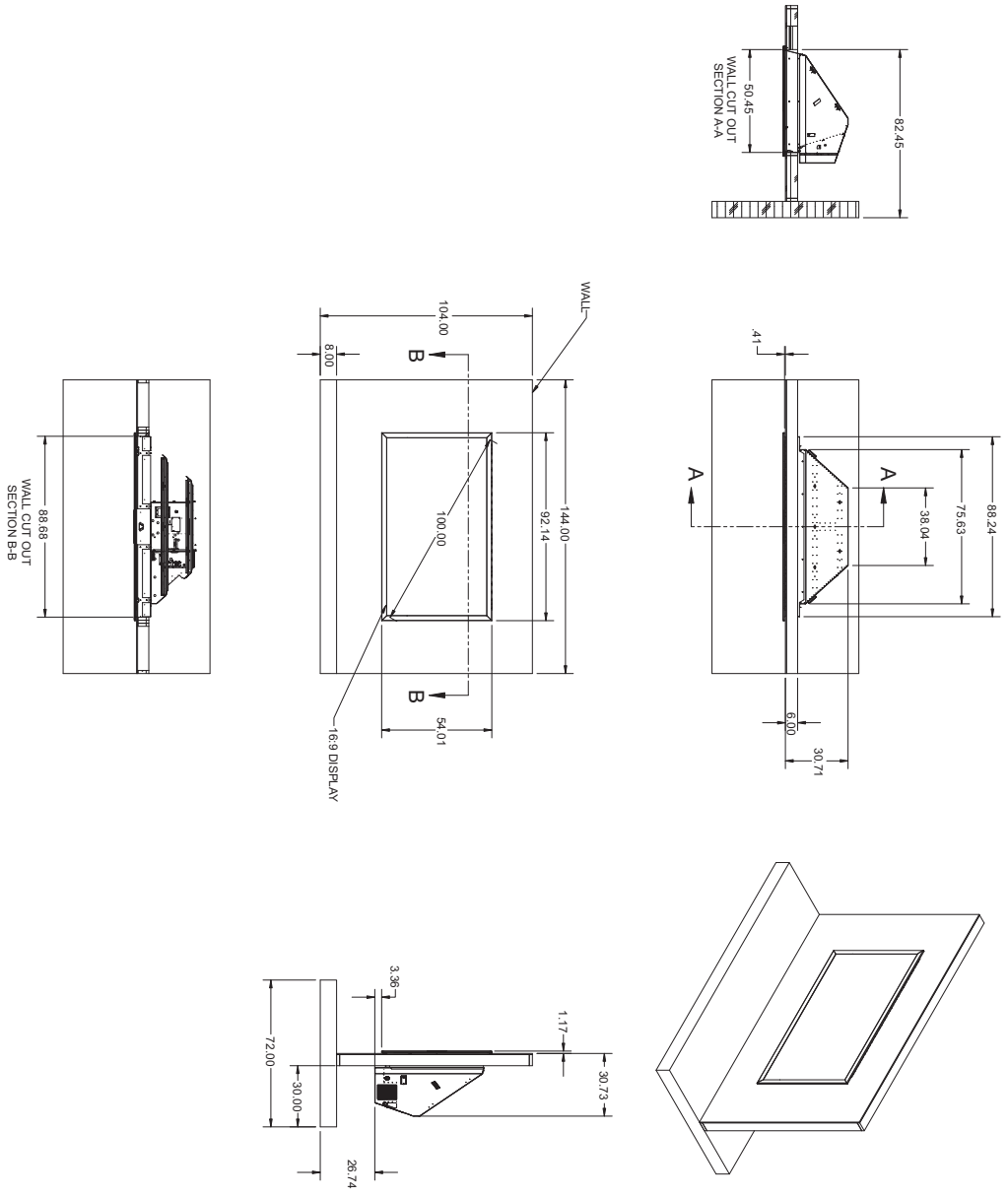


Figure 6-3. VideoWall VW-100HD Dimensions

Figure 6-4 shows the CineWall CW-95HD dimensions (all dimensions are in inches).

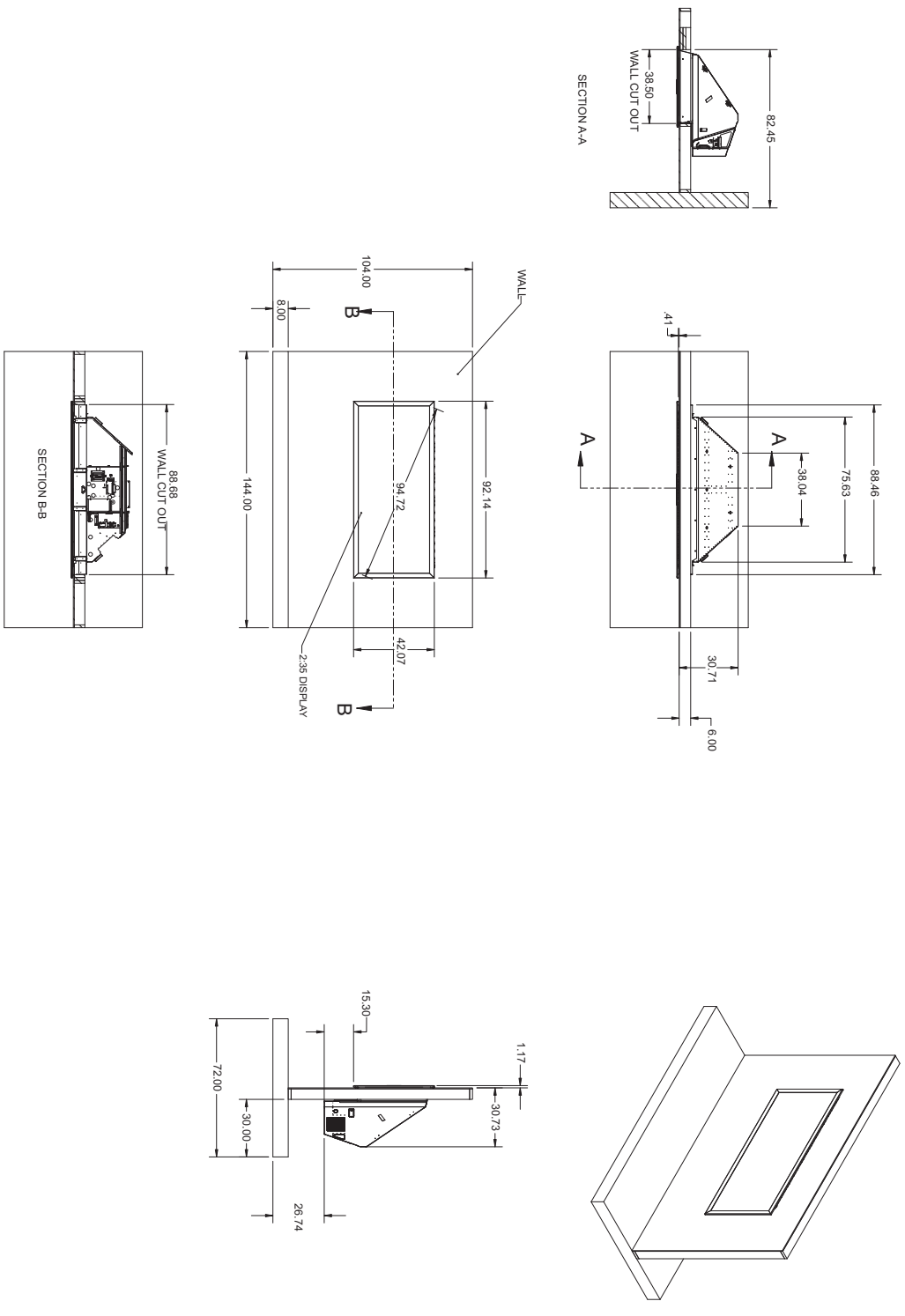


Figure 6-4. CineWall CW-95HD Dimensions

6.4 Supported Timings

Table 6-3 lists the signal types supported by each input on the VideoWall/CineWall.

Table 6-3. Supported Signal Timings by Input

Format	Resolution	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Pixel Frequency (MHz)	Supported? (√ = Yes, – = No)			
					RGB	Component	HDMI/ DVI	Composite S-Video
640x480	640x480	60.00	31.469	25.175	√	–	√	–
		72.00	37.861	31.500	√	–	√	–
		75.00	37.500	31.500	√	–	√	–
		85.00	43.269	36.000	√	–	√	–
800x600	800x600	56.00	35.156	36.000	√	–	√	–
		60.00	37.879	40.000	√	–	√	–
		72.00	48.077	50.000	√	–	√	–
		75.00	46.875	49.500	√	–	√	–
		85.00	53.674	56.250	√	–	√	–
848x480	848x480	60.00	31.017	33.684	√	–	√	–
852x480	852x480	60.00	31.726	34.010	√	–	√	–
1024x768	1024x768	60.00	47.816	63.500	√	–	√	–
		60.00	48.363	65.000	√	–	√	–
		70.00	56.476	75.000	√	–	√	–
		75.00	60.023	78.750	√	–	√	–
		85.00	68.677	94.500	√	–	√	–
1024x1024	1024x1024	60.00	32.331	42.677	√	–	√	–
1152x864	1152x864	75.00	67.500	108.000	√	–	√	–
1280x720	1280x720	50.00	37.490	74.250	√	–	√	–
		60.00	44.960	74.250	√	–	√	–
1280x768	1280x768	60.00	47.776	79.500	√	–	√	–
		75.00	60.289	102.250	√	–	√	–
		85.00	68.633	117.500	√	–	√	–
1280x960	1280x960	60.00	60.000	108.000	√	–	√	–
		85.00	85.938	148.500	√	–	√	–
1280x1024	1280x1024	60.00	63.981	108.000	√	–	√	–
		75.00	79.976	135.000	√	–	√	–
		85.00	91.146	157.500	√	–	√	–
1360x768	1360x768	60.00	47.720	84.750	√	–	√	–

Table 6-3. Supported Signal Timings by Input (continued)

Format	Resolution	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Pixel Frequency (MHz)	Supported? (√ = Yes, – = No)			
					RGB	Component	HDMI/ DVI	Composite S-Video
1366x768	1366x768	60.00	50.000	80.000	√	–	√	–
1400x1050	1400x1050	60.00	65.317	121.750	√	–	√	–
1600x1200	1600x1200	60.00	74.537	161.200	√	–	√	–
		60.00	75.000	162.000	√	–	√	–
1920x1080	1920x1080	50.00	67.521	148.550	√	–	√	–
		60.00	66.587	138.500	√	–	√	–
		60.00	67.158	173.000	√	–	√	–
		60.00	67.470	148.550	√	–	√	–
480/60i	720x487	59.94	15.734	13.500	–	√	√	√
480/60p	720x483	59.94	31.469	27.000	√	√	√	–
576/50i	720x576	50.00	15.625	14.750	–	√	√	√
576/50p	720x576	50.00	31.250	27.000	√	√	√	–
720/50p	1280x720	50.00	37.500	75.250	√	√	√	–
720/60p	1280x720	59.94	44.964	74.250	√	√	√	–
1080/24i	1920x1080	24.00	26.997	74.250	√	√	√	–
1080/25i	1920x1080	25.00	28.125	74.250	√	√	√	–
1080/30i	1920x1080	30.00	33.749	74.250	√	√	√	–
1080/24p	1920x1080	24.00	26.990	74.250	√	√	√	–
1080/25p	1920x1080	25.00	28.200	74.250	√	√	√	–
1080/30p	1920x1080	30.00	33.750	74.250	√	√	√	–
NTSC 3.58	–	59.94	15.734	3.580	–	–	–	√
NTSC 4.43	–	59.94	15.734	4.430	–	–	–	√
PAL-B/G	–	50.00	15.625	4.430	–	–	–	√
PAL-N	–	50.00	15.625	3.580	–	–	–	√

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